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# The Wilderness Act of 1964: Where Do We Go From Here?

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# COMMENT

## The Wilderness Act of 1964: Where Do We Go From Here?

The signing of the Wilderness Act[1] into law on September 3, 1964, marked the beginning of a new era for wilderness conservationists. The Act established a National Wilderness Preservation System (NWPS) initially encompassing 54 wilderness areas covering some 9.3 million acres in 10 Western States.[2] The Act provided guidelines for the usage of the lands within the system, and established procedures for reviewing over 220 additional units of land for possible inclusion within the next 10 years.

This comment will evaluate the continuing viability of the Wilderness Act in light of the more than 11 years which have elapsed since its passage. Following a brief historical overview and a synopsis of the provisions of the Act, the comment examines some of the problems encountered in the application of the guidelines for inclusion of additional lands. A short statistical abstract of the present composition of the NWPS will then be presented. Next, a discussion of the difficulties encountered in administering lands under the Act's vaguely defined wilderness concept will be presented, followed by an analysis of the need to change the present wilderness concept. The comment concludes with some specific suggestions for amending the Act to eliminate several of its present inconsistencies and to provide a two-tiered system for accomodating both pure wilderness areas and areas which would allow limited commercial exploitation.

### I. BACKGROUND[3]

The early American settlers had little need for a wilderness preservation act. Their biggest problem was how to tame the

1. 16 U.S.C. §§ 1131-36 (1970).

2. *The Wilderness System*, 41 LIVING WILDERNESS MAGAZINE 41 (1975).

3. For a more fully developed historical account of the background and history of the wilderness preservation movement in America and of the Wilderness Act of 1964, see R. NASH, WILDERNESS AND THE AMERICAN MIND (rev. ed. 1973) [hereinafter cited as NASH]; J. SUNDQUIST, POLITICS AND POLICY: THE EISENHOWER, KENNEDY, AND JOHNSON YEARS (1968) [hereinafter cited as SUNDQUIST]; McCloskey, *The Wilderness Act of 1964: Its Background and Meaning*, 45 ORE. L. REV. 288, 289-301 (1966) [hereinafter cited as McCloskey]; Mercure & Ross, *The Wilderness Act: A Product of Congressional Compromise*, in CONGRESS AND THE ENVIRONMENT 47 (1970) [hereinafter cited as Mercure].

wilderness. As the natural environment began to disappear, however, wilderness began to represent to increasing numbers of "believers" a meaningful touchstone to America's past.[4] In short, what was once a challenge to conquer became a challenge to preserve.

An overview of the important developments leading up to the passage of the Wilderness Act of 1964 logically begins in 1900,[5] when the city of San Francisco proposed the construction of a dam in the Hetch Hetchy Valley located in Yosemite National Park.[6] The people of San Francisco were in need of a fresh water supply, and city planners saw the Tuolomne River in the Hetch Hetchy Valley as an ideal location for the erection of a dam.[7] A small but dedicated group of conservationists viewed the matter differently, characterizing the valley in its natural state as a "public playground" which should not be defiled. The proponents of the dam and reservoir argued that San Francisco's need for an adequate fresh water supply should certainly take priority over a chimerical wish to preserve the wilderness. The preservationists countered by suggesting alternative water sources and describing in graphic detail the senselessness of replacing the high walls, rugged cliffs, and meandering river of the Hetch Hetchy Valley

4. McCloskey 290-92. McCloskey suggests five reasons why the early settlers of our country valued the wilderness: (1) the wilderness was a challenge to those who explored and settled it; (2) "[t]he powerful presence of nature in the wilderness served as an aid to religion and as a setting for religious experiences"; (3) wilderness was viewed as a setting for political reform; (4) "wilderness served as a refuge or sanctuary"; (5) the need to preserve the wilderness was stressed in literature which sounded alarms about the "depletion of natural resources and massive wastage." *Id.* McCloskey also lists six reasons why modern day preservationists seek to conserve wilderness regions: (1) wilderness is regarded as a national heritage; (2) wilderness is regarded as an important setting for scientific research in the biological sciences; (3) maintenance of wilderness is evidence of an intent to meet ethical obligations (man should exercise self-restraint in the extent to which he disturbs the rest of nature); (4) wilderness today is valued as an opportunity for an educational experience; (5) wilderness is valuable for therapeutic reasons; (6) wilderness is regarded as "the optimum setting for many sport forms of highest quality." *Id.* at 292-94.

5. This is not to say that earlier efforts to protect the wilderness had not been made. For example, Yosemite National Park was created in 1864 and Yellowstone National Park in 1872.

6. For interesting discussions of the Hetch Hetchy controversy see H. JONES, JOHN MUIR AND THE SIERRA CLUB 85-169 (1965); Richardson, *The Struggle for the Valley: California's Hetch Hetchy Controversy, 1905-1913*, 38 CALIF. HISTORICAL SOC'Y Q. 249-58 (1959).

7. City engineers had considered damming the narrow end of the valley since the 1880's but were temporarily forced to abandon this proposal when the Act creating Yosemite National Park designated the Hetch Hetchy Valley a "wilderness preserve." The impetus needed to revive the argument for the erection of a dam came in April 1906 when the San Francisco fire and earthquake "added urgency and public sympathy to the search for an adequate water supply." NASH 161.

with an unsightly reservoir.[8] A long series of debates and public and congressional hearings ensued,[9] but when the dust finally settled more than 13 years after the city's original recommendation, Congress had voted to approve the city's proposal.[10]

The preservationists' loss in the Hetch Hetchy controversy by no means totally defeated their cause. For the first time in American history, wilderness preservation had become an issue of national prominence. Moreover, the controversy had identified the positions and constituencies of the opposing factions and had demonstrated the need for careful organization and planning in place of sporadic emotional outcries. On one side was a small but highly motivated group of preservationists sharing the common belief that the natural environment must in some degree be preserved for future generations.[11] On the other side were the lumbering, mining, irrigation, and livestock interests, who viewed the wilderness as another area for commercial development,[12] and the recreationists, who saw the wilderness areas as excellent places to

8. *Id.* at 161-70. For a more detailed account of the various tactics used and arguments advanced by both sides of the Hetch Hetchy controversy see *id.* at 162-79.

9. *Id.* at 162-79. The two schools of thought over the controversy are illustrated by the following statements;

> As to my attitude regarding the proposed use of Hetch Hetchy by the city of San Francisco . . . I am fully persuaded that . . . the injury . . . by substituting a lake for the present swampy floor of the valley . . . is altogether unimportant compared with the benefits to be derived from its use as a reservoir. Gifford Pinchot, 1913.
>
> These temple destroyers, devotees of ravaging commercialism seem to have a perfect contempt for nature, and instead of lifting their eyes to the God of the Mountains, lift them to the Almighty Dollar. John Muir, 1912.

*Id.* at 161.

10. President Woodrow Wilson signed into law the bill authorizing the dam on December 19, 1913. *Id.* at 179.

11. The philosophy that certain areas should be preserved in their natural state is not unique to the 20th century. Toward the end of the middle ages, St. Francis of Assisi praised God for the natural environment and early philosophers such as Edmund Burke, Immanuel Kant, and Lord Byron were strong supporters of the worth of pure wilderness. McCloskey 290. *See also* E. BURKE, A PHILOSOPHICAL ENQUIRY INTO THE ORIGIN OF OUR IDEAS OF THE SUBLIME AND THE BEAUTIFUL (1971). For a modern philosophical viewpoint on the wilderness preservation issue see Sagoff, *On Preserving the Natural Environment*, 84 YALE L.J. 205 (1974);

> [I]t is satisfying to ground the protection of the environment on our most national legal institution. The right of our citizens to their history, to the signs and symbols of their culture, and therefore to some means of protecting and using their surroundings in a way consistent with their values is as important as the right to an equally apportioned franchise or to participation in a party primary. These rights are not to be denied on economic grounds.

*Id.* at 267 (footnotes omitted).

12. McCloskey 298.

camp, fish, water-ski, and sell concessions.[13]

The Hetch Hetchy controversy also provided the preservationists with a clearer understanding of the political process and the ways in which it could be used not only to prevent proposed developments in wilderness areas on an ad hoc basis, but also to prevent future encroachments on a much broader scale. As a result, such prominent preservationists as Aldo Leopold,[14] Robert Marshall,[15] and Howard Zahniser,[16] together with an increasing number of preservationist groups,[17] enthusiastically supported such actions as the Forest Service's decision to set aside and preserve certain wilderness areas within the National Forests,[18] and the efforts of the National Park Service to prevent logging, mining, and grazing within the national parks and monuments.[19] The ephemeral nature of these administrative efforts, however, was not entirely satisfactory. Consequently, the preservationists turned their efforts toward achieving more permanent legislative controls in the form of a wilderness bill.

The initial proposals for a wilderness bill in the early 1950's met with considerable opposition and were generally unsuccessful.[20] Something was needed to generate additional public support for the preservationist cause, and it came in the form of a proposal to construct a dam on the Green River within Dinosaur National Monument in Utah.[21] Like the Hetch Hetchy Valley 50 years before,[22] the deep, narrow gorge of the Green River was

13. *See, e.g.*, Association for the Protection of the Adirondacks v. MacDonald, 253 N.Y. 234, 170 N.E. 902 (1930), where recreationists as well as commercial enterprises set forth their views on how part of the wilderness areas in New York should be used.

14. Aldo Leopold was an ecologist to whom much of the success of the preservationist movement in the first half of the 20th century can be attributed. One of his first major accomplishments was a successful campaign in the early 1920's for a policy of wilderness preservation within the National Forest System. *See* NASH 182-99.

15. Marshall founded the Wilderness Society in 1935. *Id.* at 200-08.

16. Zahniser figured prominently in the leadership of the preservationist movement in the legislative battles leading up to the enactment of the Wilderness Act of 1964. *Id.* at 219.

17. The Sierra Club (formed in San Francisco in 1892) and the Wilderness Society (founded in the State of Washington in 1935) were the first two preservationist groups. *Id.* at 132 & 207.

18. SUNDQUIST 336.

19. *Id.*

20. McCloskey 298.

21. For a discussion of the entire Colorado River Storage Project see O. STRATTON & P. SIROTKIN, THE ECHO PARK CONTROVERSY 79 (Inter-University Case Program No. 46, 1959).

22. The Hetch Hetchy incident was effectively called upon by the conservationists to help support their stand. "Before" and "after" photographs were exhibited in a display which strikingly contrasted the high, green valleys of the pre-dam Hetch Hetchy Valley with the muddy, barren banks of the artificial reservoir. NASH 215.

attractive to both reclamationists and preservationists. Since many other wilderness areas were threatened by commercial exploitation at the time,[23] the Echo Park Dam proposal provided a focal point for national attention and a forum for airing the positions of the opposing sides.[24] Although the furor raised over the Echo Park Dam did not immediately result in the passage of a national wilderness bill, the fact that the Colorado River Storage Project finally approved by Congress in 1956[25] did not include the proposed dam was itself a major achievement for the preservationists.

From the Dinosaur National Monument victory, the preservationists reaffirmed their drive for congressional action to establish a national wilderness system. The movement gained substantial ground in 1956 when Senator Hubert Humphrey inserted a speech given by Howard Zahniser, then executive director of the Wilderness Society, into the Congressional Record.[26] Replies to the speech were generally favorable,[27] and the result was the in-

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23. Nash describes the situation as follows:

> Dams were pending in both Glacier and Grand Canyon National Parks. Los Angeles had designs on Kings Canyon, wildest of the National Parks which the Sierra Club unsuccessfully sought to have named in John Muir's honor, for a source of municipal water supply. In the East, the Adirondack State Park's status as wilderness was in jeopardy from plans for dams on the Moose River at Panther and Higley Mountains.

*Id.* at 210.

24. The conservationists mounted a massive campaign. As Nash points out:

> Appealing to the public with flyers, articles, editorials, and open letters, they succeeded in arousing a storm of protest. The House mail showed a ratio of those who would keep Dinosaur wild to those in favor of the dam of eighty to one.

*Id.* at 216. Senator Arthur V. Watkins of Utah provided a good example of the ambivalence of many of the individuals involved with the controversy when he stated:

> I am as much interested in beauty, in rugged scenery and preservation of nature's great wonders [as anyone] . . . but I want to point out . . . that to my mind, beautiful farms, homes, industries and a high standard of civilization are equally desirable and inspiring.

*Id.* at 211. "Speaker Rayburn said in 1954 that Congressmen had received more mail in protest against Echo Park Dam than on any other subject." SUNDQUIST 337. Numerous pamphlets and articles were distributed and a professional motion picture was made to educate the public concerning the detrimental effects of the proposal on the environment. The movement received national attention through popular periodicals and had the backing of 78 national and 236 state conservation organizations. *Id.*

25. NASH 219. A sentence in the Colorado River Storage Project bill states: "[N]o dam or reservoir constructed under the authorization of the Act shall be within any National Park or Monument." *Id. See also* O. STRATTON AND P. SIROTKIN, THE ECHO PARK CONTROVERSY 79 (Inter-University Case Program No. 46, 1959).

26. SUNDQUIST 337.

27. *Id.*

troduction of the first wilderness bill (S. 4013) in June of 1956.[28]

The proposed bill was met by strong opposition from such commercial groups as the American Pulpwood Association, the American National Cattleman's Association, and the American Mining Association, who felt that the proposal would either exclude them from wilderness areas entirely or severely restrict their use of these areas. The bill was also opposed by groups of recreationists who feared the exclusion of camping and related activities from wilderness areas.[29] Surprisingly, the Forest Service and the National Park Service were also opposed to the proposal, which they saw as an attempt to limit their authority to administer the lands within their control.[30] The heavy lobbying pressure mounted by these interests resulted in the defeat of the initial wilderness proposals,[31] and the Multiple Use Act of 1960[32] was largely a result of compromise over the passage of a satisfactory wilderness bill.[33]

In 1961, the preservationist movement gained substantial support when President Kennedy endorsed a proposed wilderness bill.[34] The net result was that the ensuing congressional debates focused primarily on compromises over the authority to add lands to the wilderness system, the status of mining and other commercial activities in wilderness areas, and the initial amount of land to be included in the system, rather than on whether the bill should be passed at all.[35] The bill which finally received Senate approval in 1961,[36] however, was radically altered by the House Interior Committee under the leadership of Representative Wayne Aspinall of Colorado,[37] and died in committee upon ad-

28. For a discussion of the important Senate and House bills dealing with wilderness preservation see McCloskey 298; Mercure 53.

29. NASH 241.

30. McCloskey 298; Mercure 53-54. Sundquist quotes a senior forest official as saying, "It hurt our pride, to suggest that we had to have our hands tied by law." SUNDQUIST 338.

31. Mercure 52.

32. 16 U.S.C. §§ 528-31 (1970). The Act designated multiple use and sustained yield as firm objectives in the administration of national forest lands and stressed the propriety of preserving the natural environment to the fullest possible extent. *Id.* § 529.

33. McCloskey 299; Mercure 52.

34. McCloskey 299.

35. Mercure 55.

36. *Id.* at 57.

37. Representative Aspinall, chairman of the House Interior and Insular Affairs Committee, represented the views of most western legislators whose constituents included substantial mining, timber, and grazing interests. These congressmen were opposed to a concept of wilderness preservation which would preclude such activities in wilderness areas. Aspinall was also opposed to the presidential authority clauses in several of the early bills introduced to his committee. For a more detailed account of the political history of the bill see *id.* at 57-59.

journment of the House in 1962. In 1963 another wilderness bill was passed by the Senate only to again meet opposition in the House Interior and Insular Affairs Committee.[38] Realizing that a wilderness bill would never be passed if concessions were not made,[39] the preservationists agreed to many of the House Interior Committee's demands in exchange for debate on the floor of the House where considerable support for the bill existed.[40] As a result, the bill passed the House and was subsequently signed into law by President Lyndon Johnson on September 3, 1964.[41]

## II. THE WILDERNESS ACT OF 1964

The provisions of the 1964 Wilderness Act limited the group of lands which could be designated as wilderness to national forest lands previously classified as "wilderness," "wild," "canoe," and "primitive," and to "roadless" areas of more than 5,000 contiguous acres in national parks, monuments, wildlife refuges, and game ranges.[43] Wilderness, wild, and canoe areas automatically became part of the National Wilderness Preservation System (NWPS) upon the effective date of the Act,[44] while primitive and roadless areas were to be reviewed by the Secretaries of Agriculture and the Interior to determine their suitability for future inclusion in the NWPS.[45] The conclusions of the Secretaries were to be submitted to the President, who, in turn, was to make recommendations concerning the lands to Congress for final approval.[46] Also open to presidential recommendation were "any contiguous area[s] of national forest lands predominantly

38. McCloskey 300.

39. Regarding the concessions made by the preservationists, Mercure states:

> [I]n the fall of 1963 it became obvious to the preservationists that time and the realities of congressional power were against them and that it was better to get some protection rather than none at all. It was also recognized that while they had to invest huge amounts of money in an attempt to arouse the public, the opposition had friends of long standing in Congress who could block the measure forever.

Mercure 58.

40. *Id.*

41. 16 U.S.C. §§ 1131-36 (1970).

42. It should be noted that this section does not contain an exhaustive discussion of all of the provisions of the Wilderness Act, but rather focuses only on those sections relevant to this comment.

43. 16 U.S.C. § 1132(a)-(c) (1970).

44. *Id.* § 1132(a). The only canoe area was the Boundary Waters Canoe Area in Minnesota. As of the effective date of the Act there existed 53 wilderness and wild areas. Haight, *The Wilderness Act: Ten Years After*, 3 ENV. AFFAIRS 275, 278 (1974).

45. 16 U.S.C. § 1132(b)-(c) (1970).

46. *Id.*

of wilderness value."[47] The President was required to submit recommendations on one-third of the designated lands within 3 years, on two-thirds of the lands within 7 years, and on all remaining lands within 10 years.[48]

In general, lands designated as wilderness areas are to be free from commercial enterprises, roads, any form of motorized or mechanized transport, and all manmade structures.[49] Economic interest groups, however, were successful in obtaining numerous exceptions to these strict proscriptions regarding land use within national forest wilderness areas. First, where already established, use of aircraft and motorboats may continue.[50] Second, mineral prospecting is allowed as long as it is conducted in a manner consistent with wilderness preservation.[51] Third, mining and mineral leasing laws will generally continue to apply until December 31, 1983.[52] Fourth, water and power projects are permissible under some circumstances, and previously established grazing uses may be continued.[53] Fifth, regulations governing the Boundary Waters Canoe Area in Minnesota, though less stringent than the strict provisions of the Wilderness Act, are to remain in effect.[54] Sixth, commercial services necessary to the realization of recreational and other wilderness purposes are permitted.[55] In light of these exceptions, the efficacy of the Act in preserving the wilderness characteristics of areas included within the NWPS is to a large extent dependent upon the manner in which the Departments of Agriculture and the Interior, the President, and Congress carry out their discretionary responsibilities.

## III. Procedural Problems in the Administration of the Act

### A. *Guidelines for Inclusion of Additional Lands*

The Wilderness Act provided very few guidelines for the De-

47. The provision of the Wilderness Act pertaining to contiguous areas states:

> Nothing herein contained shall limit the President in proposing, as part of his recommendations to Congress, the alteration of existing boundaries of primitive areas or recommending the addition of any contiguous area of national forest lands predominantly of wilderness value.

*Id.* § 1132(b).

48. *Id.* § 1132(b)-(c).
49. *Id.* § 1133(c).
50. *Id.* § 1133(d)(1).
51. *Id.* § 1133(d)(2).
52. *Id.* § 1133(d)(3).
53. *Id.* § 1133(d)(4).
54. *Id.* § 1133(d)(5).
55. *Id.* § 1133(d)(6).

partments of Agriculture and the Interior in their review of lands designated for possible inclusion in the NWPS. Apparently, Congress was confident that these departments would promulgate their own guidelines and procedures in conformity with the Act's general wilderness concept. The criticisms leveled against both the Forest Service and the Department of the Interior during the 11 years since passage of the Act,[56] however, would suggest that this congressional confidence was misplaced for at least two reasons. First, the Act's definition of "wilderness" was not abundantly clear. Second, the departments charged with administering the Act often had objectives and attitudes in conflict with the concept of wilderness preservation.[57] While it is true that the President and Congress are not bound by the recommendations of the departments concerning potential wilderness areas, these recommendations are generally agreed to be extremely influential, and thus many recent criticisms would have been eliminated had the Act provided more explicit guidelines for departmental review.

### *B. Protection of Potential Wilderness Areas Pending Review*

Just as the Act failed to provide specific guidelines for review, it also failed to specify the uses to be permitted in potential wilderness areas pending review by the departments and recommendations by the President and Congress.[58] This problem was

56. *See generally* Haight, *The Wilderness Act: Ten Years After*, 3 ENV. AFFAIRS 275 (1974).

57. Indeed, one of the factors behind the initial movement for legislative regulation of this area was the preservationists' concern that administrative discretion was too unpredictable to provide consistency and fairness in the administration of wilderness areas. *See* Note, *Parker v. United States: The Forest Service Role in Wilderness Preservation*, 3 ECOLOGY L.Q. 145, 147 (1973) [hereinafter cited as Note, *Parker v. United States*].

58. The Forest Service included its regulations in *The Forest Service Manual*. A Roadless Area Review Evaluation (RARE) program was devised which provides for review of "all roadless areas 5,000 acres or larger in the National Forest System as well as smaller roadless areas which are contiguous to existing primitive areas or wildernesses." *See* note 76 and accompanying text *infra*. The Interior Department attempted to incorporate the wilderness reviews within its master plan study for all areas in the National Park System. *See generally* Haight, *The Wilderness Act: Ten Years After*, 3 ENV. AFFAIRS 275, 287 (1974); *The Wilderness System*, 41 LIVING WILDERNESS MAGAZINE 38 (1975).

Many of the areas mandated for review by the Wilderness Act are also protected by the requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321, 4331-35, 4341-47 (1970). *See, e.g.*, Wyoming Outdoor Coordinating Council v. Butz, 484 F.2d 1244 (10th Cir. 1973); Sierra Club v. Butz, 349 F. Supp. 934 (N.D. Cal. 1972) (enjoining timber cutting in 55 million acres of "de facto wilderness" until environmental impact statements were completed). But the protection given by NEPA to potential wilderness areas is not as complete as that offered by the Wilderness Act. For example,

discussed in *Parker v. United States*,[59] in which a group of concerned preservationists challenged the right of the United States Forest Service to permit the cutting of timber in an area adjoining the Gore Range Eagles Nest Primitive Area in Colorado.[60] Since the area in dispute was contiguous to a primitive area, the plaintiffs contended that it was entitled to review for possible wilderness designation and that no nonwilderness uses could be permitted within the area pending review.[61] The United States District Court for the District of Colorado agreed and granted an injunction against the cutting of timber in the area on grounds that the power of the President and Congress to include additional lands within the NWPS would be jeopardized if the Forest Service were allowed to impair the wilderness condition of the area before proper review procedures were completed.[62]

The district court in *Parker* recognized that not all areas contiguous to national forests were intended to be reviewed under the Act, but only those areas "which seem to have significant wilderness resources."[63] Accordingly, the court found that the disputed area possessed sufficient wilderness characteristics to merit its protection against such nonwilderness uses as timber cutting pending review by the Department of Agriculture.[64] This "minimum suitability" test was not intended to provide the ultimate criteria for determining whether the area should be designated as wilderness, but rather was designed to indicate whether the area possessed sufficient wilderness characteristics to merit its preservation pending review.[65]

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environmental impact statements are only required when there exists a major federal action significantly affecting the quality of the human environment. 42 U.S.C. § 4332(c) (1970). There are certainly many nonwilderness activities which do not constitute major federal actions.

59. 309 F. Supp. 593 (D. Colo. 1970), *aff'd*, 448 F.2d 793 (10th Cir. 1971), *cert. denied*, 405 U.S. 989 (1972).

60. The area was known as the East Meadow Creek Basin and consisted of approximately 3,000 acres. *Id.* at 595.

61. *Id.* at 594.

62. *Id.* at 599. The court found that it was "crystal clear from the evidence that the consummation of the present sale will effectively take all of East Meadow Creek out of contention as a primitive or wilderness addition." *Id.* at 596.

63. *Id.* at 599. The District Court applied the Forest Service's own regulations which state: "Each Primitive Area . . . *and contiguous lands which seem to have significant wilderness resources* will be studied . . . . U.S. DEPT. OF AGRICULTURE, FOREST SERVICE MANUAL § 2321(1)." *Id.* (emphasis added).

64. *Id.* at 601.

65. The court stated:

> However, we are not here concerned with the issue of whether or not the Forest Service must recommend East Meadow Creek for wilderness classifica-

On appeal, the Tenth Circuit Court of Appeals affirmed the district court's order that the Forest Service restudy and include recommendations concerning the disputed area in its report to the President.[66] Like the district court, the court of appeals perceived its role in determining the suitability of the area for wilderness preservation as entirely preliminary. As stated by the court:

> This requirement [to preserve the area until final determination of its suitability for wilderness preservation] in no way directs or limits the Secretary in his full discretionary right to make such recomommendation [*sic*] to the President as he may deem proper.[67]

Thus, the *Parker* decision made it clear that all lands specified in the Act for wilderness review, including contiguous lands with significant wilderness characteristics, would be protected from nonwilderness uses pending review.

The *Parker* decision also shed some light on the meaning of the term "contiguous." In rejecting the contention that the presence of a narrow "bumper" zone[68] between the area in dispute and the Gore Range Eagles Nest Primitive Area made the disputed area noncontiguous, the Tenth Circuit indicated that it is not crucial that an area share a common boundary with a primitive region to be classified as contiguous. The *Parker* decision may be limited to its specific facts, however, and in the absence of a definition within the Act itself, the problem of identifying contiguous areas remains unresolved.[69]

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> tion. Nor would we undertake to second guess the Secretary by a ruling that the area in question is wilderness.

*Id.* at 600.

66. 448 F.2d 793, 797-98 (10th Cir. 1971), *cert. denied*, 405 U.S. 989 (1972).

67. *Id.* at 797. It has been suggested that the circuit court did not clearly use the "minimum suitability" test set out by the district court. *See* Note, *Parker v. United States* 163. It is clear, however, that the circuit court did not intend to make the ultimate decision regarding the wilderness suitability of the area in dispute.

68. The "bumper" zone was created when the Forest Service reduced the number of board feet in the contract for the sale of timber in the region, thereby eliminating the lands immediately adjacent to the primitive area from a direct relationship with the proposed contract. The court states that "[t]he preservation of a 'bumper' area does not probe the basic question presented, merely serves to lessen the impact of the agency action, and does not justify such action [as timber cutting] if otherwise prohibited." 448 F.2d at 796.

69. *See* Note, *Parker v. United States* 164. The author of the foregoing note suggests that:

> The Service should review the entire scope of the next manageable ecological unit adjoining a primitive area, excluding that unit or portions of it from study, report and interim protection only when the impact of man is substantial enough to preclude the entire area or portion excluded from meeting the minimum suitability test.

*Id.*

*Parker* also failed to define the point at which the Forest Service's duty to protect a contiguous area ends. Although the injunction continued "until a final determination has been made by Congress," neither the circuit nor the district court expressly considered this issue. However, since the President may continue to make recommendations until final action has been taken by Congress,[70] it would appear only logical that contiguous areas should be protected as long as there is a possibility for inclusion in the NWPS.[71]

### *C. Lands Not Included*

Much of the potentially suitable wilderness land owned by the Federal Government was not specifically designated for review under the Wilderness Act.[72] The effect of this omission was forcefully demonstrated in *Sierra Club v. Hardin*,[73] in which the United States District Court for the District of Alaska held that an estimated 1,090,000 acres of Forest Service land possessing obvious wilderness characteristics were not entitled to protection under the Wilderness Act because:

> The Act expressly provides that "no Federal lands shall be designated as 'wilderness areas' except as provided for in this chapter or by subsequent Act." 16 U.S.C. § 1131(a) (Supp. 1970). Since there were no "primitive" areas in Alaska on September 3, 1964, and it does not appear that the sale includes any land within a national park, wildlife refuge or game range, the Wilderness Act has no application here.[74]

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70. 16 U.S.C. § 1132(b)-(c) (1970).

71. Predictably, the Forest Service chose to read the *Parker* decision narrowly. The "minimum suitability" language of the district court was rejected in favor of "predominantly of wilderness value" criteria in departmental memoranda issued subsequent to the *Parker* decision. Note, *Parker v. United States* 168. Also, "in a recent administrative ruling of the Department of Agriculture [the Forest Service] indicated that it would refuse to follow *Parker* outside the 10th Circuit." *Id.* at 168 n.105. Despite this narrow interpretation of *Parker* by the Forest Service, the decision already has had some statutory effect and placed conservationists in a better position at the bargaining table. *Id.* at 168-69.

72. No provision was made, for example, for the review of lands under the control of the Bureau of Land Management, the Government's largest land supervisor. It would thus appear that the Act, which many conservationists had hoped would provide a comprehensive system for wilderness preservation, has forgotten one rather essential ingredient—land.

73. 325 F. Supp. 99 (D. Alas. 1971).

74. *Id.* at 124. The problem pointed out in *Hardin* has been partially eliminated in Alaska by the establishment of huge park and wildlife reservations within the National Park System pursuant to the Alaska Native Claims Settlement Act, 43 U.S.C. §§ 1601 *et. seq.* (Supp. 1970).

As a result of this failure to explicitly provide for review of all potentially suitable lands, it is necessary to turn to a rather obscure section of the Act to find some authority for including lands not specifically designated for review within the NWPS. Section 6 of the Act allows the Secretaries of Agriculture and the Interior to make recommendations in their annual reports to Congress concerning "any" areas deemed suitable for wilderness preservation.[75] Although such recommendations are completely discretionary, it appears that the departments have not totally ignored their authority to review lands other than those specifically designated in the Act. The Forest Service has implemented a "Roadless Area Review and Evaluation" program which provides for review of "*all* roadless areas 5,000 acres or larger in the National Forest System as well as smaller roadless areas which are contiguous to existing Primitive Areas or Wildernesses."[76] The Interior Department has also implemented a program to review all areas with possible wilderness potential.[77] Similarly, Congress on its own initiative has occasionally designated areas as wilderness which have not been set aside for review by the Act.[78]

Thus, although the Act does not explicitly provide for review of all lands with wilderness potential, it appears that at least some areas not designated for review by the Act are receiving attention through administrative and legislative action. It nevertheless seems anomalous that such actions should be necessary to bring areas with significant wilderness characteristics into the NWPS. This criticism does not necessarily imply that more lands should be included within the wilderness system, but only that it may be more beneficial to initially provide for the study of *all* potentially suitable lands so that when the optimum amount of wilderness acreage has been set aside, that acreage will include the areas best suited for preservation.[79]

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75. 16 U.S.C. § 1136 (1970).

76. U.S. FOREST SERVICE CI REPORT No. 11, NEW WILDERNESS STUDY AREAS, at 2 (1973).

77. The Point Reyes National Seashore Wilderness Area, comprising more than 10,000 acres of California seashore including several "roaded" areas, is an example of the additional areas being considered by the Interior Department. *See* Buell, *The Wilderness Act and the National Wildlife Refuges and Ranges*, in WILDERNESS AND THE QUALITY OF LIFE 6, 26-27 (1969).

78. An example of a congressionally initiated wilderness area is the Sawtooth Wilderness Area in Idaho. *See* Haight, *The Wilderness Act: Ten Years After*, 3 ENV. AFFAIRS 275, 284-85 (1974).

79. For a discussion concerning the concept of an optimal amount of wilderness acreage see notes 146-48 and accompanying text *infra*.

## IV. WHAT'S BEEN DONE[80]

Since passage of the Wilderness Act in 1964, some 144 areas totaling more than 13 million acres in the National Forest, National Park, and National Wildlife Refuge Systems have been added to the National Wildlife Preservation System through congressional enactments. As of January 1, 1976, 104 wilderness areas in the national forests[81] and 40 wilderness areas in the national parks and national wildlife refuges had been created.[82]

When the Act was passed in 1964, 34 primitive areas within the National Forest System were mandated for review. All 34 have now been studied by the Forest Service under the direction of the Secretary of Agriculture. Sixteen of these areas have been incorporated into the NWPS, while the 18 remaining areas await congressional action.[83] The Act also required the Department of the Interior to review 186 areas in the National Park System, the National Wildlife Refuges, and the Migratory Bird Refuges for wilderness suitability. As of January 1, 1976, 40 units involving over 750,000 acres had been added to the NWPS[84] and 112 units comprising 10.5 million additional acres had been reviewed and await congressional action.[85]

The above figures indicate that the reviews mandated by the Wilderness Act have been accomplished in reasonable proximity to the Act's 10-year deadline. To be sure, the start was slow, with only 8 areas finding their way into the NWPS in the first 6 years, but the finish has been strong with 48 units being added in 1974 alone.[86] It may also be noted that no deadlines were set for congressional action and over 110 areas which have received departmental review now await final approval.[87]

It would therefore appear that the Act has worked admirably well. Although there may be disagreement as to whether too little or too much acreage was finally included in wilderness areas, the

80. Statistics in this section were obtained from *The Wilderness System*, 41 LIVING WILDERNESS MAGAZINE 38 (1975) and from information received from the Department of the Interior, the United States Forest Service, and the House and Senate Committees on Interior and Insular Affairs.

81. *See* appendix A *infra*.

82. *See* appendices BI & CI *infra*.

83. *The Wilderness System*, 41 LIVING WILDERNESS MAGAZINE 42 (1975).

84. *See* appendices BI & CI *infra*.

85. *See* appendices BII & CII *infra*.

86. *See* appendices A, BI, & CI *infra*. Of course, 54 wilderness areas were included in the NWPS concurrently with the passage of the Wilderness Act in 1964.

87. *See* appendices BII & CII *infra*.

study of the lands designated for review has largely been completed.

## V. The Wilderness Concept

The Act's concept of wilderness governs determinations of which lands are to be included in the NWPS as well as decisions concerning how those lands are to be administered. Although the wilderness concept has worked fairly well, at least if lack of litigation is any indication of success,[88] there have been some problems resulting from its vagaries, and increased pressure for future development of wilderness lands could create additional problems if the concept is not clarified.

The Act includes provisions which alternately illuminate and cloud the wilderness concept. Section 2(a) indicates that it is the policy of Congress to "secure for the American people of present and future generations the benefits of an enduring resource of wilderness" by preserving and protecting lands "in their natural condition."[89] Section 2(c), entitled "Definition of Wilderness," indicates that wilderness is an area "untrammeled by man, where man himself is a visitor who does not remain," an area retaining its "primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions."[90] To this point the definition unequivocally refers only to lands which are "untrammeled," "primeval," and "natural."[91] However, section 2(c) also includes land:

> which (1) *generally* appears to have been affected *primarily* by the forces of nature, with the imprint of man's work *substantially* unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic, or historical value.[92]

88. A survey by the authors of the case law involving the Wilderness Act has revealed relatively little litigation. However, it must be recognized with respect to environmental litigation that large legal expenses and the generally nonexistent prospect of financial reward may tend to discourage potential plaintiffs.

89. 16 U.S.C. § 1131(a) (1970).

90. *Id.* § 1131(c).

91. McCloskey 307.

92. 16 U.S.C. § 1131(c) (1970) (emphasis added).

Points (2) through (4) of this definition seem consistent with the unqualified notion of "natural condition," but point (1) suggests a more lenient wilderness concept—one watered down by the qualifiers "generally," "primarily," and "substantially."[93] Although point (1) has been interpreted by the Forest Service to require a "pristine appearance with no evidence of man's activities whatsoever,"[94] it appears that this interpretation is stricter than Congress intended. Section 4 of the Act, dealing with the use of wilderness areas, commences with the general rule that "there shall be no commercial enterprise and no permanent road within any wilderness area,"[95] but goes on to permit several commercial and recreational uses which would require mechanized transport,[96] as well as the continuation of previously established grazing activities.[97] Thus, notwithstanding its definition of wilderness as an area untrammeled by man, Congress clearly expected less than purity to prevail in many of the areas included within the NWPS.

The difficulties in interpreting the wilderness concept have arisen in deciding how much impurity to allow. Uses such as grazing, motorboating, and flying light aircraft may be justified under the Act's wilderness concept because their effects on the natural environment are relatively limited. However, other uses permitted under section 4, such as mining and logging, substantially alter the natural conditions of the land and would therefore appear to be basically incompatible with wilderness preservation.[98]

The suggestion that mining is incompatible with wilderness preservation is supported by the legislative history of the wilderness bill.[99] The House Report on the bill indicates that "prospecting for mineral or other resources would be allowed if so conducted as to be compatible with the preservation of a wilderness environment."[100] Yet, in a remarkable bit of doubletalk, the Report also explains that "[c]urrently authorized uses that are incompatible with wilderness preservation should be phased out over a reasonable period of time"[101] and points out that the

93. McCloskey 307.

94. *The Wilderness System*, 41 LIVING WILDERNESS MAGAZINE 38, 42 (1975).

95. 16 U.S.C. § 1133(c) (1970).

96. *Id.* § 1133(c)-(d).

97. *Id.* § 1133(d)(4).

98. *See* notes 105 & 121 and accompanying text *infra*.

99. H.R. REP. No. 1538, 88th Cong., 2nd Sess. (1964) [hereinafter cited as H.R. REP. 1538].

100. H.R. REP. 1538 at 8.

101. *Id.* at 9.

applicability of mining and mineral leasing laws is to be limited to a period of 25 years.[102] The only possible conclusion that may be drawn from these statements is that mining would not be phased out if it were not incompatible with the concept of wilderness.

This conclusion is further supported by the decision in *Izaak Walton League of America v. St. Clair*.[103] In *St. Clair* the defendant, with the permission of the Government, undertook surface mineral exploration in conjunction with his mineral rights in land within the Boundary Waters Canoe Area (BWCA), a part of the NWPS. The Izaak Walton League sought an injunction to prevent St. Clair from continuing his operation. In a noteworthy opinion, Judge Neville of the United States District Court for the District of Minnesota granted the injunction,[104] stating:

> A Wilderness purpose plain and simply has to be inconsistent with and antagonistic to a purpose to allow any commercial activity such as mining within the BWCA . . . . In this court's opinion, the Wilderness objectives override the contrary mineral right provision of the statute (and of necessity the regulations promulgated pursuant thereto). Otherwise, the Congressional Act is a nullity. It does not seem to this court that it can presume that Congress intended a nullity.[105]

Although *St. Clair* was later reversed on procedural grounds,[106] it is indicative of probable future constructions of the Wilderness Act with regard to mining and other uses permitted by the Act which are inconsistent with wilderness preservation.

Judge Neville's virtual nullification of the provision permitting mining seems to be legitimate. It appears that "the rule now generally approved is that a proviso which is directly repugnant to the purview or body of the act is inoperative and void for

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102. *Id.*

103. 353 F. Supp. 698 (D. Minn. 1973), *rev'd and remanded*, 497 F.2d 849 (8th Cir. 1974).

104. *Id.* at 716.

105. *Id.* at 714-15.

106. 497 F.2d 849 (8th Cir. 1974). The ground for reversal was primary jurisdiction. The court determined that prior to any further judicial disposition of the case the Forest Service would have to decide whether or not to issue St. Clair a permit to mine in the BWCA. As of this writing, St. Clair has not made application for a permit, and thus the Forest Service has made no ruling. The federal defendants have filed a motion to dismiss in the district court, arguing that the case is moot given the failure of St. Clair to apply for a permit. The court has taken no action because neither party has moved to place the case on the court's calendar. It appears, however, that the mootness contention will not prevail since the opportunity exists for St. Clair to apply for a permit at any time in the future. *See generally* 1975 B.Y.U. L. REV. 181.

repugnancy."[107] As Judge Neville indicates, an extensive mining operation cannot be conducted in a manner consistent with wilderness preservation.[108] Therefore, under the above-quoted rule of construction, the proviso permitting mining becomes inoperative.

Another recently decided case, *Minnesota Public Interest Research Group v. Butz*,[109] indicates that logging is also incompatible with wilderness preservation.[110] In the first of two suits, the plaintiffs sought an injunction prohibiting logging in the Boundary Waters Canoe Area until all of the requirements of the National Environmental Policy Act (NEPA)[111] had been satisfied by the Department of Agriculture and the Forest Service.[112] The plaintiffs later filed an amended complaint seeking a permanent injunction against logging in the virgin forest areas of the BWCA based on the express requirement of the Wilderness Act that the Secretary of Agriculture maintain the primitive character of the area.[113] The defendants claimed that NEPA must be construed in light of the special Wilderness Act provision concerning the BWCA which required it to be administered "without unnecessary restrictions on other uses, including that of timber."[114] The court concluded that a restriction on logging could be challenged as "unnecessary" only if it were shown not to be essential to maintaining the primitive character of the BWCA.[115] The court held that a permanent injunction against logging in the BWCA

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107. 73 AM. JUR. 2d *Statutes* § 321 (1974). *See* 82 C.J.S. *Statutes* § 381 (1953).

108. As stated in the opinion:

> There can be no question but that full mineral development and mining will destroy and negate the wilderness or most of it. Even any substantial exploratory operation such as core drilling will require a means of ingress and egress, a communications system of some kind, the establishment of various camp sites, the importation of food, clothing, etc., power lines and the modification to a greater or lesser extent of the environemnt. Should minerals be discovered in commercially productive quantities and be amenable to open pit mining as in other locations in Minnesota or as in taconite sites, the purpose and values of almost the entire BWCA is lost. The same is true, but to somewhat lesser degree, should any mining be done in the conventional underground method. In either event, access as by railroad or highway is necessary, areas of timber must be logged off, a water supply must be obtained and other wilderness interferences effected.

353 F. Supp. at 714.

109. No. 4-72 Civil 598 (D. Minn., Aug. 13, 1975).

110. *Id.* at 94.

111. 42 U.S.C. §§ 4321, 4331-35, 4341-47 (1970).

112. Minnesota Pub. Interest Research Group v. Butz, 358 F. Supp. 584, 587 (D. Minn. 1973), *aff'd*, 498 F.2d 1314 (8th Cir. 1974).

113. *Id.* at 587-88.

114. 16 U.S.C. § 1133(d)(5) (1970).

115. 358 F. Supp. at 629.

would be granted if it were shown in an environmental impact statement, which the Forest Service was ordered to prepare, that "logging irretrievably destroys the character of the area involved."[116] The court also enjoined the defendants from logging "in those areas of the active timber sales on the BWCA which are contiguous with the main virgin forest areas of the BWCA pending the Forest Service's completion of its . . . impact statement."[117] The appellate court affirmed.[118]

Upon completion of the impact statement, plaintiffs brought a second suit in the district court alleging that the impact statement prepared by the Forest Service did not comply with NEPA and reasserting the claim that logging would destroy the primitive character of the region.[119] The court found the impact statement to be inadequate.[120] This finding would ordinarily require the court to order further study before issuing a permanent injunction. However, since there was substantial evidence that "logging in virgin forest areas destroys the primitive character of the area logged,"[121] the court, relying on the provisions of the Wilderness Act, permanently enjoined logging in the virgin forests and areas contiguous thereto within the BWCA.[122] Having granted an injunction against logging pursuant to the Wilderness Act, the court concluded that further study under NEPA would be superfluous.[123]

The court also denied defendant's counterclaim for a declaratory judgment that a total proscription of logging within the BWCA, including previously logged areas,[124] would be unlawful under the Wilderness Act.[125] The court agreed that "logging within previously logged-over areas does not have as much of an adverse effect on the primitive character of the area as does log-

116. *Id.*
117. *Id.* at 630.
118. Minnesota Pub. Interest Research Group v. Butz, 498 F.2d 1314 (8th Cir. 1974).
119. Minnesota Pub. Interest Research Group v. Butz, No. 4-72 Civil 598 at 2.
120. *Id.* at 79-82.
121. *Id.* at 94.
122. *Id.* at 99.
123. *Id.* at 97.
124. Ordinarily logged-over areas would not be included within the NWPS.
> [T]he special BWCA provision of the Wilderness Act was necessary to afford the BWCA the same protection as other wilderness areas although the area did not conform with the statute's proposed definition of wilderness. Past timber harvesting disqualified the BWCA as a wilderness under the proposed definition and rather than dilute that definition, the special BWCA provision was written to include the BWCA within the protection of the Wilderness Act.

*Id.* at 87.
125. *Id.* at 96.

ging in virgin forest areas,"[126] but nevertheless concluded that the disruptive effect of logging even in previously logged areas would be "sufficient to justify eliminating all BWCA logging at the discretion of the Secretary of Agriculture."[127] Thus, the court also suggests that even where logging has been established in a wilderness area prior to its inclusion within the NWPS,[128] continued logging should be prohibited to allow nature to slowly restore the wilderness character of the area.

The *St. Clair* and *Butz* cases demonstrate that at least two activities permitted by the special provisions in section 4 of the Act, *i.e.*, mining and logging, are incompatible with the wilderness concept and should be disallowed. Other uses mentioned in section 4 which seem incompatible with wilderness preservation are: "oil and gas leasing, discovery work, drilling, . . . production,"[129] "prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, . . . other facilities needed in the public interest, including road construction and maintenance essential to development and use thereof,"[130] and "commercial services . . . to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas."[131]

The wilderness concept which governs inclusion and administration of lands within the NWPS has been unclear because of seemingly contradictory provisions in sections 2 and 4 of the Act. Section 2 provides a general wilderness definition which requires lands designated as wilderness to be characterized by essentially primeval conditions.[132] Section 4, which prescribes activities permissible in wilderness areas, provides a strict general rule which appears to be compatible with section 2,[133] but also contains special provisions allowing uses seemingly incompatible with wilderness preservation.[134] The conflicts between these sections can be resolved, however, by allowing the sections to work together while emphasizing the Act's overall objective of "securing for the American people of present and future generations the benefits of an

126. *Id.* at 95.
127. *Id.* at 96.
128. *See* note 124 *supra*.
129. 16 U.S.C. § 1133(d)(3) (1970).
130. *Id.* § 1133(d)(4).
131. *Id.* § 1133(d)(6).
132. *Id.* § 1131(c).
133. *Id.* § 1133(c).
134. *Id.* § 1133(d).

enduring resource of wilderness."[135] Portions of section 4 illustrate situations in which the section 2 concept may be applied leniently, while section 2 provides general guidelines for constraining uses permitted under section 4.[136] For example, section 4 provisions allowing activities which only nominally disturb the wilderness, such as grazing and motor-boating, suggest that absolute purity is not required by the section 2 definition.[137] Still, the emphasis of section 2 on preservation of natural conditions suggests that commercial enterprises allowed by section 4, such as mining and logging, should not be permitted if they substantially alter the wilderness character of lands in which they are undertaken.[138] By this interpretation some section 4 uses may never be permissible within the wilderness system.[139]

## VI. Can a Strict Wilderness Concept Be Justified?

The courts are required to resolve current inconsistencies in the Wilderness Act by virtually nullifying certain of its provisions. Congress can remove this responsibility from the courts by amending the Act to either eliminate uses which are incompatible with the current wilderness concept, change the concept of wilderness so that presently incompatible uses would be permissible under its provisions, or adopt a two-tiered wilderness system which would provide for pure wilderness in some areas and limited commercial development in others. In evaluating the relative merit of these alternatives, policymakers would probably rely on a cost-benefit analysis.[140] This technique evaluates the benefits of a project to an affected group in terms of the utility provided by the project (generally measured in dollars)[141] which would not

135. *Id.* § 1131(a).

136. Despite the fact that several special uses permitted by section 4 of the Act clearly seem to be incompatible with the general wilderness concept which emerges from section 2, some commentators have suggested that section 2 provides lenient criteria for determining whether lands should be included within the NWPS while section 4 contains strict guidelines for management of lands once they are admitted into the system. *The Wilderness System*, 41 Living Wilderness Magazine 38, 44 (1975). *See* Haight, *The Wilderness Act: Ten Years After*, 3 Env. Affairs 275, 288 (1974). However, the fact that section 4 uses discussed above would probably disqualify an area from inclusion within the NWPS under section 2 criteria casts doubt on this suggestion.

137. *See* notes 96 & 97 and accompanying text *supra*.

138. *See* notes 98-137 and accompanying text *supra*.

139. *See* note 105 and accompanying text *supra*.

140. For a discussion of cost-benefit analysis techniques see A. Harberger, Project Evaluation.

141. Since cost-benefit analysis is a quantitative aid to decisionmaking, it is necessary to use some unit of measure to quantify the costs and benefits being considered in

accrue to the group but for the project. The costs of the project are based on the utility which would be foregone (again measured in dollars) as a result of not employing the resources involved in the project in their next best alternative use.[142]

All projects entail both present and future benefits and costs. Since people generally prefer present to future benefits and future to present costs, the future costs and benefits of a project are generally "weighted" through a process referred to as "discounting" to approximate their "present" value equivalents. In a project involving decisions affecting the general public, however, it may be argued that the interests of future generations should be weighted as heavily as the interests of the present generation, making the discounting process unnecessary. In any event, once all costs and benefits of a project in each year have been estimated, the net present value of the project may be calculated—a positive value indicating that the project is justifiable and a negative value indicating that it should be abandoned.[143]

This section will suggest factors (both pecuniary and nonpecuniary) which policymakers should consider in performing a cost-benefit analysis to determine which of the proposed wilderness concepts should be adopted and will conclude with a tentative recommendation for a wilderness concept based on the factors presented.

### *A. Factors To Be Considered in Performing a Cost-Benefit Analysis*

For purposes of this discussion, a leniently managed wilderness system will be assumed to be the next best alternative to a strictly managed system, and no attempt will be made to compare either of these alternatives with a system allowing large-

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the analysis. This measure usually has been the dollar, which is easily applied to pecuniary benefits and costs, but applied only with difficulty to nonpecuniary benefits and costs.

142. This measurement is referred to as the "opportunity cost" of the project.

143. A common symbolic formulation of a cost-benefit analysis follows:

$$NPV = (B_0 - C_0) + \frac{B_1 - C_1}{1 + r} + \frac{B_2 - C_2}{(1 + r)^2} + \ldots + \frac{(B_n - C_n)}{(1 + r)^n} = \sum_{i=0}^{n} \frac{(B_i - C_i)}{(1 + r)^i}$$

In this equation, $B_n$ = benefits in the nth year of the project, $C_n$ = costs in the nth year, r = discount rate, n = number of years over which the project is to be evaluated, and NPV = net present value of the project. Benefits and costs are estimated over the life of a project. An r is chosen which appropriately weights present against future costs and benefits. If the values of B, C, and r produce NPV >O, then the project should be undertaken. If a public decision is being made, and discounting is felt to be unnecessary, the discount rate will be zero (r = O).

scale commercial development. (For present purposes, a strictly managed system will be defined as one allowing only pure wilderness uses permitted under the present Act, and a leniently managed wilderness system will be defined as one allowing the incompatible uses permitted under the present Act.) Given this assumption, by performing a cost-benefit analysis of a strict wilderness concept, the merits of strictly and leniently managed systems can be compared. The pecuniary benefits of a strict concept would be measured primarily in terms of the income which would be imputed to recreational, educational, and scientific use[144] of strictly managed lands above that which could be imputed to the same activities in the same lands under a lenient concept. The pecuniary costs would be the income foregone from such activities as mining, logging, water reclamation, and power production.[145] A strictly pecuniary cost-benefit analysis of the value of wilderness preservation will result in the conclusion that the creation of the National Wilderness Preservation System, with wilderness strictly defined, is justified when pecuniary benefits outweigh pecuniary costs for the amount of acreage considered.[146]

The magnitude of costs and benefits associated with a wilderness concept is greatly influenced by the relative scarcities of the goods which can be derived from wilderness lands. Lands which are potentially includable in the NWPS may be enjoyed either in a pristine or a commercially developed state. Goods associated with enjoyment of pristine wilderness will be called pristine goods. Goods associated with commercial development will be called commercial goods. Increasing the amount of land committed to a strictly managed wilderness sytem increases the amount of pristine goods and decreases the amount of commercial goods available for public consumption. By the law of diminishing returns,[147] each additional acre added to a strictly managed

144. These uses are proposed in 16 U.S.C. § 1131(c)(4) (1970); *Id.* § 1133(b). *See generally* Minnesota Pub. Interest Research Group v. Butz, No. 4-72 Civil 598 at 44. For a discussion of the benefits of wilderness preservation see note 4 *supra*.

145. These uses are mentioned in 16 U.S.C. § 1133(d) (1970) and are discussed in the previous section of this comment.

146. The analysis undertaken in this discussion may be represented by the following equation:

$$NPV = \sum_{i=o}^{n} (B_i - C_i)$$

B = benefits accruing from strictly managed wilderness. C = benefits accruing from leniently managed wilderness. n = number of years over which benefits and costs are expected.

147. According to the law of diminishing returns, each additional unit of a good consumed, *ceteris paribus*, provides less utility than the previous unit.

wilderness system provides the public with fewer benefits than the previous acre added because it contains pristine goods possessing decreased marginal benefits. At the same time, each additional acre is added with increased costs, since each addition causes commercial goods possessing increased marginal benefits to be withheld from consumption. It follows then that if preservation of lands as strictly managed wilderness is justified at all, there is some optimal amount of wilderness acreage beyond which the cost of preservation is greater than the benefit.[148]

Two commentators, Laurence Tribe and Mark Sagoff, have suggested nonpecuniary benefits of a strict wilderness concept which should be added to the pecuniary benefits already mentioned.[149] Both present their ideas to get away from a utilitarian (cost-benefit) justification for wilderness protection which they fear will be too ephemeral to justify permanently preserving our natural environs.[150] Although, as will be shown, neither seems to succeed in his effort to escape utilitarianism, each points out benefits which should be included in any cost-benefit analysis.

In *Ways Not To Think About Plastic Trees: New Foundations for Environmental Law*,[151] Tribe argues that a "homocentric want-oriented perspective,"[152] which Sagoff correctly labels utilitarian,[153] must be abandoned if a permanent basis for wilderness preservation is to be found.[154] Tribe maintains that this homocentric perspective leads the environmentalist into the trap of "articulating environmental goals wholly in terms of human needs and preferences."[155] His concern is that as human wants and needs

148. This type of analysis may also be used to suggest an optimal amount of leniently managed wilderness land.

149. Sagoff, *On Preserving the Natural Environment*, 84 YALE L.J. 205 (1974) [hereinafter cited as Sagoff]; Tribe, *Ways Not To Think About Plastic Trees: New Foundations for Environmental Law*, 83 YALE L.J. 1315 (1974) [hereinafter cited as Tribe].

While at first glance it may appear that one of the most important nonpecuniary justifications for wilderness preservation is beauty, Sagoff argues that "[e]ven if nature in the rough were beautiful, this would not be an adequate reason to protect it from development." Sagoff 245. Tribe also suggests that the appearance of the natural environment will not provide a justification for saving it. Tribe 1316 (plastic trees can provide most people with the feeling they are experiencing nature). Beauty therefore will not be discussed as a nonpecuniary reason for wilderness preservation.

150. *See* notes 154 & 163 and accompanying text *infra*.

151. Tribe.

152. The homocentric want-oriented perspective is that value system which treats human needs and desires as the ultimate frame of reference for making social decisions and which Sagoff correctly labels utilitarian. *See* note 153 *infra*.

153. Sagoff 215.

154. Tribe 1331.

155. *Id.* at 1330.

presently filled by the wilderness become artificially satisfied our commitment to wilderness preservation will erode.[156] He therefore suggests that a more enduring basis for preserving the natural environment is needed and proposes that one can be found in the interests of nonhuman entities.[157]

But considering nonhuman interests does not result in a nonutilitarian justification for wilderness preservation. Instead, nonhuman interests merely comprise another variable to be included in the utility calculus.[158] While these interests ought to be given some weight and would undoubtedly weigh in favor of preservation, they are at best difficult to calculate and can only be calculated by human beings who will use them to promote human interests. Thus, they are subject to the same weaknesses as the human wants and needs Tribe disparages as justifications for protection efforts.[159]

Sagoff, in *On Preserving the Natural Environment*,[160] presents a different justification for wilderness preservation:[161]

> Preserving an environment may be compared to maintaining an institution, for symbols are to values as institutions are to our legal and political life. The obligation to preserve nature, then,

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156. Tribe states:

> By treating individual human need and desire as the ultimate frame of reference, and by assuming that human goals and ends must be taken as externally "given" (whether physiologically or culturally or both) rather than genericated by reason, environmental policy makes a value judgment of enormous significance. And, once that judgment has been made, any claim for the continued existence of threatened wilderness areas or endangered species must rest on the identification of human wants and needs which would be jeopardized by a disputed development. As our capacity increases to satisfy those needs and wants artifically, the claim becomes tenuous indeed.

*Id.* at 1326.

157. *Id.* at 1345.

158. *See id.* As Sagoff points out, Tribe concludes that "the interests of all entities affected by a policy must be taken into account." Sagoff 223. Sagoff correctly explains that the only difference between the "homocentric want-oriented perspective" Tribe is disparaging and Tribe's approach is that Tribe's approach is not homocentric. Tribe merely broadens the range of interests to be included in the utility calculus. *Id.* at 215-19.

159. *See generally* Sagoff 223. Interestingly, one of Sagoff's arguments against Tribe is the animals and plants may prefer a nonnatural environment. *Id.* But the argument seems less than compelling in view of the numerous species which have dwindled or perished as a result of the encroachment of man upon their environs.

160. Sagoff.

161. Sagoff states: "As long as policies are intended to maximize the general satisfaction, they will be no better, morally or spiritually, than the interests they serve." *Id.* at 225. Sagoff's concern, therefore, is similar to that expressed by Tribe with regard to a utilitarian justification for wilderness preservation: that is, that the obligation to the wilderness will fade as interests change.

> is an obligation to our cultural tradition, to the values which we have cherished and in terms of which nature and this nation are still to be described.[162]

He then states why he consideres this view to be nonutilitarian:

> It is difficult and indeed unnecessary to argue that fulfilling this obligation to our national values, to our history, and, therefore, to ourselves confers any kind of a benefit; perhaps fulfilling a responsibility is itself a benefit; but this view requires not that we define "responsibility" in terms of "benefits," as the utilitarian does, but that we define "benefits" in terms of "responsibilities." In any case, preservation of the qualities, and accordingly the values, that this nation, as a nation, has considered pecularily its own—and these are the qualities of nature—certainly obliges us to do otherwise than follow our pleasure and profit. Consequently, there may be reason to think that fidelity to our historic values imposes both a "benefit" and a "cost."[163]

Indeed, there are costs and benefits in the preservation of values, just as any analysis of the merits of wilderness preservation itself reveals costs and benefits. What Sagoff has really performed is a cost-benefit analysis of value preservation to conclude, on balance, that preserving values is worthwhile and that the wilderness, because it is a symbol of our national values, should be preserved. His discussion of defining "benefits" in terms of "responsibilities" rather than "responsibilities" in terms of "benefits," even if persuasive, seems irrelevant to the conclusion that preserving a symbol of our national values is beneficial. Thus, Sagoff supplies us with yet another variable to include in the utility calculus—value preservation.[164]

While Tribe and Sagoff may not have escaped utilitarianism, it may be the nonpecuniary benefits they point out that tip the balance in favor of maintaining a pure wilderness concept. In making this determination, however, it is recognized that a time may come when, because of an increased scarcity of goods obtainable only by activities incompatible with a strict concept of wilderness preservation, cost-benefit analysis yields a far different result than it does today.

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162. Sagoff 265.

163. *Id.*

164. Paradoxically, Sagoff's argument that the wilderness ought to be preserved for nonutilitarian reasons is not persuasive unless one is convinced that the preservation effort would be beneficial.

### *B. A Two-Tiered Wilderness Concept*

The analysis presented above indicates the probability that preservation of a limited amount of wilderness in its pristine state is justified. That same analysis could also be used to demonstrate the merit in preserving additional areas in which limited commercial development would be, or has been allowed.[165] Thus, a two-tiered wilderness system composed of what could be labeled Grade I and Grade II wilderness areas is in order. Grade I areas would include lands to be maintained according to strict wilderness standards. Grade II areas would include lands in which all uses allowed under section 4 of the present Act[166] would be permissible, both before and after inclusion within the system. The Grade II classification would impose stricter requirements than the present Multiple-Use Sustained Yield Act[167] in that wilderness preservation would be the prevailing administrative objective rather than just one of many considerations governing administration.

Clearly, cost-benefit analysis could be utilized to determine not only whether specific lands should be included in the wilderness system, but also whether those lands would be better suited for Grade I or Grade II classification. Thus, lands containing resources of high commercial value as well as desirable wilderness qualities would probably be suited for Grade II classification, while lands with little commercial potential and high wilderness value would certainly be reserved for Grade I status. This two-tiered concept is preferable to the exclusive application of either a strict or a lenient wilderness concept because it recognizes and preserves the wilderness characteristics of essentially primeval, though somewhat commercially exploited lands, while at the same time maintaining other primitive lands according to the strictest wilderness definition.

## VII. The Future of the Act: Some Suggestions

With the expiration of the Act's 10 year period for review of potential wilderness areas, Congress now has the opportunity to review the provisions of the Act and to make necessary adjustments. In light of the foregoing discussion, the following changes appear desirable:

165. *See* note 148 and accompanying text *supra*.
166. *See* notes 129-31 and accompanying text *supra*.
167. *See* note 32 and accompanying text *supra*.

(1) The administrative agencies should be provided with guidelines which clearly define the criteria to be considered in reviewing areas for designation as wilderness. This would eliminate, to a degree, the large amount of agency discretion in the review process and would foster uniformity in decisions concerning which areas are to be included within the NWPS. This suggestion, of course, has little importance unless Congress decides that there is merit in considering lands besides those set aside for review in the original Act.

(2) The definition of "contiguous" should be clarified so that review of all areas in reasonable proximity to primitive areas is undertaken. Lands defined to be contiguous to a primitive area should include all those adjacent to the primitive area possessing the same ecological and geographical characteristics as the primitive area, whether or not those lands actually share common boundaries with the primitive area.

(3) The Act should specify that all lands mandated for review under the Act, including contiguous areas, are to be protected against all nonwilderness uses until such time as Congress acts on the Presidential recommendations regarding their wilderness suitability.

(4) The Wilderness Act should be broadened to require the study of those lands which were not mandated for review under the original Act, but which possess significant wilderness characteristics.

(5) An amendment should be seriously considered which would impose a time frame within which Congress must act on the affirmative recommendations of the President. Failure of Congress to act within the specified period, *i.e.*, 120 days, would result in the automatic inclusion of the recommended area within the NWPS. This amendment appears especially appropriate in light of the fact that few, if any, Presidential recommendations have been disapproved by Congress. Such an amendment would do much to expedite the inclusion of lands into the NWPS and thereby reduce problems associated with protection of the lands pending review, recommendation, and congressional enactment.

(6) The Wilderness Act should be amended to establish a two-tiered wilderness system—establishing Grade I and Grade II wilderness areas—in place of the one level system which now exists. Grade I areas would be strictly maintained so that no use incompatible with pristine wilderness conditions would be permitted. Grade II areas would not be as stringently maintained. Activities such as water reclamation, the use of power equipment

(such as motorboats and helicopters), mining, and logging would be permitted, although closely regulated and limited. Logged-over forests could in included in Grade II areas under some circumstances. Each area would be classified on the basis of a separate cost-benefit analysis.

## VIII. Conclusion

Although a product of considerable compromise, the Wilderness Act of 1964 has worked admirably well in the 11 years since its passage. The review procedures have been substantially complied with and the NWPS has been greatly enlarged in 26 states.

There have been some problems, however, both with the procedural aspects of the Act and with the Act's concept of wilderness preservation. Since the 10 year review process has ended, now is an appropriate time for Congress to take a critical look at these deficiencies and to amend the Act accordingly. The establishment of a two-tiered wilderness sytem would do much to eliminate the inconsistencies in the Act and to satisfy, at least in part, the preservationists as well as those representing commercial enterprises.

### Appendix A

Areas of the National Forest System Included in the National Wilderness Preservation System

| | State | Name of Area | Acreage | Year Entered | Public Law |
|---|---|---|---|---|---|
| 1. | Alabama | Sipsey | 12,000 | 1974 | 93-622 |
| 2. | Arizona | Chiricahua | 18,000 | 1964 | 88-577 |
| 3. | Arizona | Sierra Andia | 20,850 | 1964 | 88-577 |
| 4. | Arizona | Mazatzal | 205,346 | 1964 | 88-577 |
| 5. | Arizona | Superstition | 124,140 | 1964 | 88-577 |
| 6. | Arizona | Galiuro | 55,000 | 1964 | 88-577 |
| 7. | Arizona | Mt. Baldy | 7,000 | 1970 | 91-504 |
| 8. | Arizona | Sycamore Canyon | 48,500 | 1972 | 92-241 |
| 9. | Arizona | Pine Mountain | 19,500 | 1972 | 92-230 |
| 10. | Arkansas | Caney Creek | 14,433 | 1974 | 93-622 |
| 11. | Arkansas | Upper Buffalo | 10,590 | 1974 | 93-622 |
| 12. | Arkansas | Belle Starr Cave | 700 | 1975 | 93-622 |
| 13. | Arkansas | Dry Creek | 5,500 | 1975 | 93-622 |
| 14. | Arkansas | Richland Creek | 2,100 | 1975 | 93-622 |
| 15. | California | Marble Mtn. | 214,543 | 1964 | 88-577 |
| 16. | California | Yolla Middle Ecl | 111,091 | 1964 | 88-577 |
| 17. | California | South Warner | 69,547 | 1964 | 88-577 |
| 18. | California | Thousand Lakes | 16,335 | 1964 | 88-577 |
| 19. | California | Cucamongan | 9,022 | 1964 | 88-577 |
| 20. | California | San Gorgonia | 34,718 | 1964 | 88-577 |
| 21. | California | Hoover | 42,800 | 1964 | 88-577 |
| 22. | California | San Jacinto | 21,955 | 1964 | 88-577 |

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|---|---|---|---|---|---|
| 23. | California | Caribou | 19,080 | 1964 | 88-577 |
| 24. | California | Desolation | 63,500 | 1969 | 91-82 |
| 25. | California | Minarets | 109,599 | 1964 | 88-577 |
| 26. | California | John Muir | 504,263 | 1964 | 88-577 |
| 27. | California | Dome Land | 62,561 | 1964 | 88-577 |
| 28. | California | Mikelumne | 50,400 | 1964 | 88-577 |
| 29. | California | Yolla Bolly-Middle Ecl | 111,091 | 1964 | 88-577 |
| 30. | California | San Gabriel | 36,000 | 1968 | 90-318 |
| 31. | California | San Rafael | 143,000 | 1968 | 90-271 |
| 32. | California | Ventana | 98,000 | 1969 | 91-58 |
| 33. | California | Agua Tibia | 16,971 | 1974 | 93-632 |
| 34. | California | Emigrant | 106,910 | 1974 | 93-632 |
| 35. | Colorado | Mount Zirkel | 72,180 | 1964 | 88-577 |
| 36. | Colorado | West Elk | 62,000 | 1964 | 88-577 |
| 37. | Colorado | Rawah | 36,797 | 1964 | 88-577 |
| 38. | Colorado | La Garita | 49,000 | 1964 | 88-577 |
| 39. | Colorado | Maroon Bells-Snow Mass | 66,280 | 1964 | 88-577 |
| 40. | Colorado | Weminuche | 405,031 | 1974 | 93-632 |
| 41. | Florida | Sopchoppy River | 5,400 | 1974 | 93-622 |
| 42. | Florida | Bradwell Bay | 22,000 | 1974 | 93-622 |
| 43. | Georgia | Cohutta | 34,500 | 1974 | 93-622 |
| 44. | Idaho, Montana | Selway-Bitterroot | 1,354,659 | 1964 | 88-577 |
| 45. | Idaho | Sawtooth | 216,383 | 1972 | 92-400 |
| 46. | Idaho | Hells Canyon | 193,840 | 1975 | 94-199 |
| 47. | Kentucky | Beaver Creek | 5,500 | 1974 | 93-622 |
| 48. | Michigan | Rock River Canyon | 5,400 | 1974 | 93-622 |
| 49. | Michigan | Sturgeon River | 13,200 | 1974 | 93-622 |
| 50. | Minnesota | Boundary Waters Canoe Area | 1,034,852 | 1964 | 88-577 |
| 51. | Montana | Bob Marshall | 950,000 | 1964 | 88-577 |
| 52. | Montana | Scapegoat | 240,000 | 1972 | 92-395 |
| 53. | Montana | Cabinet Mountains | 94,272 | 1964 | 88-577 |
| 54. | Montana | Anaconda-Piutlar | 159,086 | 1964 | 88-577 |
| 55. | Montana | Gates of the Mts. | 28,562 | 1964 | 88-577 |
| 56. | Montana | Mission Mountains | 75,583 | 1974 | 93-622 |
| 57. | Nevada | Jarbridge | 64,827 | 1964 | 88-577 |
| 58. | New Hamp. | Great Gulf | 5,400 | 1964 | 88-577 |
| 59. | New Hamp. | Presidential Range-Dry River | 20,380 | 1974 | 93-622 |
| 60. | New Mexico | Wheeler Peak | 6,051 | 1964 | 88-577 |
| 61. | New Mexico | Pecos | 165,000 | 1964 | 88-577 |
| 62. | New Mexico | Gila | 438,626 | 1964 | 88-577 |
| 63. | New Mexico | San Pedro Parks | 41,132 | 1964 | 88-577 |
| 64. | New Mexico | White Mountain | 28,230 | 1964 | 88-577 |
| 65. | No. Carolina | Linville Gorge | 7,655 | 1964 | 88-577 |
| 66. | No. Carolina | Shining Rock | 13,400 | 1964 | 88-577 |
| 67. | No. Carolina | Craggy Mountain | 1,100 | 1974 | 93-622 |
| 68. | No. Carolina | Joyce Kilmer-Slickrock | 15,000 | 1974 | 93-622 |
| 69. | No. Carolina | Ellicott Rock | 3,600 | 1974 | 93-622 |
| 70. | Oregon | Mountain Lakes | 23,071 | 1964 | 88-577 |
| 71. | Oregon | Eagle Cap | 292,700 | 1964 | 88-577 |
| 72. | Oregon | Mount Hood | 14,160 | 1964 | 88-577 |

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|---|---|---|---|---|---|
| 73. | Oregon | Three Sisters | 196,708 | 1964 | 88-577 |
| 74. | Oregon | Strawberry Mountain | 33,653 | 1964 | 88-577 |
| 75. | Oregon | Gearhart Mountain | 18,709 | 1964 | 88-577 |
| 76. | Oregon | Kalmiopsis | 78,850 | 1964 | 88-577 |
| 77. | Oregon | Diamond Peak | 35,440 | 1964 | 88-577 |
| 78. | Oregon | Mount Washington | 46,655 | 1964 | 88-577 |
| 79. | Oregon | Mount Jefferson | 100,000 | 1968 | 90-548 |
| 80. | So. Carolina | Wambaw Swamp | 1,500 | 1974 | 93-622 |
| 81. | Tennessee | Gee Creek | 2,570 | 1974 | 93-622 |
| 82. | Tennessee | Big Frog | 4,500 | 1974 | 93-622 |
| 83. | Tennessee | Citico Creek | 14,000 | 1974 | 93-622 |
| 84. | Vermont | Bristol Cliffs | 6,500 | 1974 | 93-622 |
| 85. | Vermont | Lye Brook | 14,300 | 1974 | 93-622 |
| 86. | Virginia | James River Face | 8,800 | 1974 | 93-622 |
| 87. | Virginia | Mill Creek | 4,000 | 1974 | 93-622 |
| 88. | Virginia | Mountain Lake | 8,400 | 1974 | 93-622 |
| 89. | Virginia | Peters Mountain | 5,000 | 1974 | 93-622 |
| 90. | Virginia | Ramsey's Draft | 6,700 | 1974 | 93-622 |
| 91. | Washington | Glacier Peak | 468,505 | 1964 | 88-577 |
| 92. | Washington | Mt. Adams | 43,411 | 1964 | 88-577 |
| 93. | Washington | Goat Rocks | 82,680 | 1964 | 88-577 |
| 94. | Washington | Pasayten | 500,000 | 1968 | 90-544 |
| 95. | W. Virginia | Cranberry | 36,300 | 1974 | 93-622 |
| 96. | W. Virginia | Dolly Sods | 10,215 | 1974 | 93-622 |
| 97. | W. Virginia | Otter Creek | 20,000 | 1974 | 93-622 |
| 98. | Wisconsin | Rainbow Lake | 6,600 | 1974 | 93-622 |
| 99. | Wisconsin | Flynn Lake | 6,300 | 1974 | 93-622 |
| 100. | Wisconsin | Round Lake | 4,200 | 1974 | 93,622 |
| 101. | Wyoming | Bridger | 383,300 | 1964 | 88-577 |
| 102. | Wyoming | North Absaroka | 369,700 | 1964 | 88-577 |
| 103. | Wyoming | Washakie | 714,300 | 1964 | 88-577 |
| 104. | Wyoming | Teton | 563,500 | 1964 | 88-577 |

## APPENDIX B

### Part I

Areas of the National Park System Included in the National Wilderness Preservation System

| | State | Area | Acreage | Year | Pub. Law |
|---|---|---|---|---|---|
| 1. | Arizona | Petrified Forest | 50,260 | 1970 | 91-504 |
| 2. | California | Lava Beds | 28,460 | 1972 | 92-493 |
| 3. | California | Lassen Volcanic National Park | 78,982 | 1972 | 92-510 |
| 4. | Idaho | Craters of the Moon | 43,243 | 1970 | 91-504 |

### Part II

Areas of the National Park System Proposed for Inclusion in the National Wilderness Preservation System

| | State | Area | Proposed Acreage |
|---|---|---|---|
| 1. | Alaska | Katmai | 2,792,137.00 |
| 2. | Alaska | Glacier Bay | 2,803,840.00 |
| 3. | Alaska | Mount McKinley | 1,939,492.80 |

| | | | |
|---|---|---|---|
| 4. | Arizona | Wupatki | 35,232.84 |
| 5. | Arizona | Saguaro | 79,083.74 |
| 6. | Arizona | Organ Pipe Cactus | 330,874.25 |
| 7. | Arizona | Grand Canyon | 897,935.00 |
| 8. | Arizona, Utah | Glen Canyon | 1,196,545.00 |
| 9. | Arizona | Chiricahu | 10,645.90 |
| 10. | Arizona, Nevada | Lake Mead | 1,936,978.00 |
| 11. | Arkansas | Buffalo | 95,730.00 |
| 12. | California | Yosemite | 761,320.32 |
| 13. | California | Sequoia | |
| 14. | California | Point Reyes | 64,546.00 |
| 15. | California | Pinnacles | 14,497.77 |
| 16. | California | Kings Canyon | 847,193.87 |
| 17. | California | Joshua Tree | 558,183.73 |
| 18. | California, Nevada | Death Valley | 1,907,760.00 |
| 19. | Colorado | Black Canyon of the Gunnison | 13,666.67 |
| 20. | Colorado | Colorado | 17,668.52 |
| 21. | Colorado, Utah | Dinosaur | 206,662.84 |
| 22. | Colorado | Great Sand Dunes | 36,740.32 |
| 23. | Colorado | Mesa Verde | 52,073.62 |
| 24. | Colorado | Rocky Mountain | 262,191.16 |
| 25. | Florida, Miss. | Gulf Islands | 163,200.00 |
| 26. | Florida | Everglades | 1,400,533.00 |
| 27. | Florida | Canaveral | 67,500.00 |
| 28. | Florida | Big Cypress | 570,000.00 |
| 29. | Georgia | Cumberland Island | 20,176.49 |
| 30. | Hawaii | Haleakala | 27,282.78 |
| 31. | Hawaii | Hawaii Volcanoes | 229,615.87 |
| 32. | Idaho, Montana, Wyoming | Yellowstone | 2,221,772.61 |
| 33. | Kentucky | Mammoth Cave | |
| 34. | Kentucky, Virginia, Tennessee | Cumberland Gap | 20,176.49 |
| 35. | Michigan | Sleeping Bear Dunes | 71,068.00 |
| 36. | Michigan | Isle Royale | |
| 37. | Minnesota | Voyageurs | 219,431.00 |
| 38. | Montana | Glacier | 2,803,840.00 |
| 39. | North Dakota | Theodore Roosevelt | 70,346.00 |
| 40. | North Carolina | Cape Lookout | 24,732.00 |
| 41. | North Carolina, Tennessee | Great Smoky Mountains | 516,626.02 |
| 42. | New Mexico | Carlsbad Caverns | 46,753.07 |
| 43. | New Mexico | Chaco Canyon | 21,509.40 |
| 44. | New Mexico | Bandelier | 29,661.20 |
| 45. | New Mexico | White Sands | 146,535.34 |
| 46. | Oregon | Crater Lake | 160,290.33 |
| 47. | South Dakota | Badlands | 243,598.41 |
| 48. | Texas | Big Bend | 708,221.20 |
| 49. | Texas | Big Thicket | 84,550.00 |
| 50. | Texas | Guadalupe Mountains | 81,077.02 |
| 51. | Texas | Padre Island | 133,918.23 |
| 52. | Utah | Zion | 147,034.97 |
| 53. | Utah | Arches | 73,234.00 |
| 54. | Utah | Bryce Canyon | 36,010.38 |
| 55. | Utah | Canyonlands | 337,258.00 |

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|---|---|---|---|
| 56. | Utah | Capitol Reef | 241,671.00 |
| 57. | Utah | Cedar Breaks | 6,154.60 |
| 58. | Virginia, Maryland | Assateague | 39,630.00 |
| 59. | Virginia | Shenandoah | 193,536.91 |
| 60. | Washington | Mount Rainier | 241,992.00 |
| 61. | Washington | North Cascades | 647,000.00 |
| 62. | Washington | Olympic | 896,599.10 |
| 63. | Wyoming | Grand Teton | 310,442.52 |

APPENDIX C

Part I

Areas of the National Wildlife Refuge System Included in the National Wilderness Preservation System

| | State | Area | Acreage | Year | Public Law |
|---|---|---|---|---|---|
| 1. | Alaska | Bering Sea | 41,113 | 1970 | 91-504 |
| 2. | Alaska | Bogoslof | 390 | 1970 | 91-504 |
| 3. | Alaska | Chamisso | 455 | 1974 | 93-632 |
| 4. | Alaska | Forrester Island | 2,630 | 1970 | 91-504 |
| 5. | Alaska | Hazy Islands | 42 | 1970 | 91-504 |
| 6. | Alaska | Saint Lazaria | 65 | 1970 | 91-504 |
| 7. | Alaska | Tuxedni | 6,402 | 1970 | 91-504 |
| 8. | California | Farallon | 141 | 1974 | 93-550 |
| 9. | Florida | Cedar Keys | 375 | 1972 | 92-364 |
| 10. | Florida | Florida Keys | 4,740 | 1974 | 93-632 |
| 11. | Florida | Island Bay | 20 | 1970 | 91-504 |
| 12. | Florida | Passage Key | 36 | 1970 | 91-504 |
| 13. | Florida | Pelican Island | 6 | 1970 | 91-504 |
| 14. | Florida | St. Marks | 17,740 | 1974 | 93-532 |
| 15. | Georgia | Blackbeard | 3,000 | 1974 | 93-632 |
| 16. | Georgia, Fla. | Okefenokee | 353,981 | 1974 | 93-429 |
| 17. | Georgia | Wolf Island | 5,126 | 1974 | 93-632 |
| 18. | Louisiana | Breton | 5,000 | 1974 | 93-632 |
| 19. | Maine | Moosehorn | 7,304 | 1970 | 91-504 |
| 20. | Massachusetts | Monomoy | 2,420 | 1970 | 91-504 |
| 21. | Michigan | Huron Islands | 105 | 1970 | 91-504 |
| 22. | Michigan | Michigan Islands | 12 | 1970 | 91-504 |
| 23. | Michigan | Seney | 25,150 | 1970 | 91-504 |
| 24. | New Jersey | Brigantine | 6,603 | 1974 | 93-632 |
| 25. | New Jersey | Great Swamp | 3,660 | 1968 | 90-532 |
| 26. | New Mexico | Bosque del Apache | 30,850 | 1974 | 93-632 |
| 27. | New Mexico | Salt Creek | 9,621 | 1968 | 91-504 |
| 28. | North Dakota | Chase Lake | 4,223 | 1974 | 93-632 |
| 29. | North Dakota | Lostwood | 5,577 | 1974 | 93-632 |
| 30. | Ohio | West Sister Island | 85 | 1974 | 93-632 |
| 31. | Oklahoma | Wichita Mountains | 8,570 | 1970 | 91-504 |
| 32. | Oregon | Oregon Islands | 21 | 1970 | 91-504 |
| 33. | Oregon | Three Arch Rocks | 17 | 1970 | 91-504 |
| 34. | So. Carolina | Cape Romain | 28,000 | 1974 | 93-632 |
| 35. | Washington | Washington Islands | 179 | 1970 | 91-504 |
| 36. | Wisconsin | Wisconsin Islands | 29 | 1970 | 91-504 |

Part II

Areas of the National Wildlife Refuge System Proposed
for Inclusion in the National Wilderness Preservation Program

| | State | Area | Proposed Acreage |
|---|---|---|---|
| 1. | Alaska | Aleutian Islands | 1,395,357 |
| 2. | Alaska | Kenai | 829,000 |
| 3. | Alaska | Izembek | 301,451 |
| 4. | Alaska | Nunivak | |
| 5. | Alaska | Semidi | 256,000 |
| 6. | Alaska | Simenof | 25,140 |
| 7. | Alaska | Unimak | 973,000 |
| 8. | Arizona | Cabeza Prieta | 833,500 |
| 9. | Arizona, Calif. | Havasu | 2,510 |
| 10. | Arizona, Calif. | Imperial | 12,010 |
| 11. | Arizona | Kofa | 570,600 |
| 12. | Arkansas | Big Lake | 1,818 |
| 13. | Arkansas | White River | 975 |
| 14. | Delaware | Bombay Hook | 2,000 |
| 15. | Florida | Chassahowitzka | 16,900 |
| 16. | Florida | J. N. "Ding" Darling | 2,735 |
| 17. | Florida | Lake Woodruff | 1,106 |
| 18. | Hawaii | Hawaiian Islands | 1,742 |
| 19. | Illinois | Crab Orchard | 4,050 |
| 20. | Iowa, Minnesota, Illinois & Wisconsin | Upper Mississippi | |
| 21. | Louisiana | Lacassine | 2,854 |
| 22. | Massachusetts | Parker River | 3,110 |
| 23. | Minnesota | Agassiz | 4,000 |
| 24. | Minnesota | Mille Lacs | 0.6 |
| 25. | Minnesota | Rice Lake | 1,406 |
| 26. | Minnesota | Tamarac | 2,138 |
| 27. | Mississippi | Noxubee | 1,200 |
| 28. | Missouri | Mingo | 1,705 |
| 29. | Montana | Charles M. Russell | 155,288 |
| 30. | Montana | Medicine Lake | 11,366 |
| 31. | Montana | Red Rock Lakes | 32,350 |
| 32. | Montana | U. L. Bend | 19,683 |
| 33. | Nebraska | Crescent Lake | 24,502 |
| 34. | Nebraska | Fort Niobrara | 4,635 |
| 35. | Nebraska | Valentine | 16,317 |
| 36. | Nevada | Anaho Island | 747 |
| 37. | Nevada | Charles Sheldon Antelope Range | 321,400 |
| 38. | Nevada | Sheldon National Antelope Refuge | 20,100 |
| 39. | Nevada | Desert | 1,443,300 |
| 40. | North Carolina | Cedar Island | 180 |
| 41. | North Carolina | Mattamuskeet | 590 |
| 42. | North Carolina | Pea Island | 180 |
| 43. | North Carolina | Swanquarter | 9,000 |
| 44. | Oregon | Hart Mountain | 15,500 |
| 45. | Oregon | Malheur | 30,000 |

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|---|---|---|---|
| 46. | Oregon | Oregon Islands | 492 |
| 47. | South Carolina | Santee | 163 |
| 48. | Vermont | Missisquoi | 2,165 |
| 49. | Washington | San Juan Islands | 168 |