

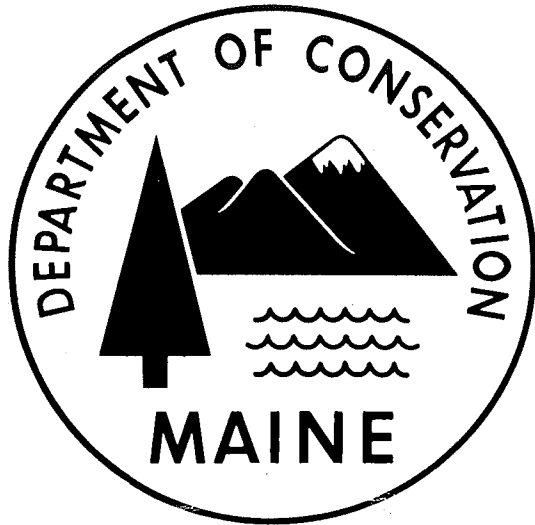
# MAINE STATE LEGISLATURE

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## COSTS OF MANAGING BACKCOUNTRY RECREATION AREAS IN MAINE, 1978

### ABSTRACT

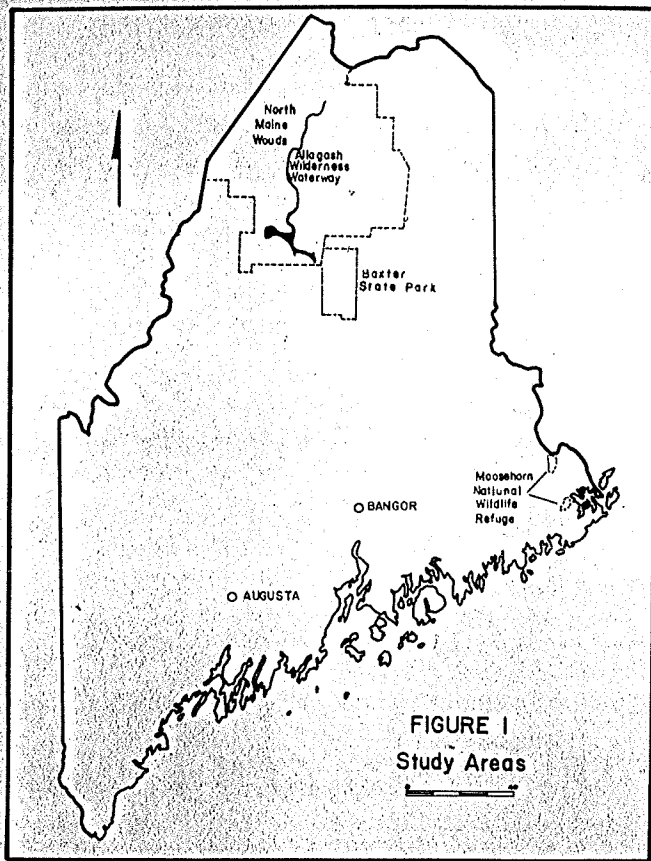
In 1978, the annual costs of managing backcountry recreation — hiking, canoeing, and primitive camping — in Maine ranged from \$3 to \$5 per visitor day, or \$2.50 to \$6 per acre. These costs amount to nearly one million dollars per year in the 4 major Maine wildland units studied. Recreationists pay nothing to use federal areas, about one-third of direct cost in the State-managed areas, and about two-thirds of direct costs for North Maine Woods, a private organization. A policy decision will be required on what portion of recreation management and land opportunity costs should be paid by recreationists. Entrance fees, taxes, or annual backcountry use stamps could be used.

Some recreation planners and researchers have predicted escalating demands for backcountry recreation. Recent trends in New England do not support such predictions (Wagner and Spencer, 1979). However this may be, federal, state and private recreation organizations face rising backlogs of maintenance and restoration work in most backcountry areas. The staff requirements of proper backcountry recreation management are now becoming clear. These needs, however, encounter the stark facts that personnel and budgets for the responsible agencies face severe pressure from inflation and competing public needs.

To assist administrators in assessing budget needs, in comparing their costs with other areas, and in analyzing policy questions, this paper presents rough cost estimates for wildland recreation management in Maine in the late 1970's.

Several previous studies have analyzed the costs of providing forest recreation. One of the earliest surveys of forest recreation costs was by Sieker (1959), who also supplied an intelligent review of policy issues. Manthey and Tucker (1972) conducted a detailed cost analysis of camping, hunting and fishing supply costs in Michigan. They found that primitive camping sites cost \$1.02 per visitor day to construct and operate, with the bulk of the costs due to operating costs. Tyre (1975), studied southern national forest recreation in the early 1970's. He found that family campgrounds cost \$1.28 per visitor day; recreation trails cost \$2.29 per visitor day, and the one wilderness sampled cost \$6.03 per visitor day. The major portion of cost for the wilderness was opportunity cost of land. Guldin (1980) studied four small wilderness areas in New England. In a detailed economic analysis, he considered capital and operating costs and opportunity costs. He found that opportunity costs loomed large in the totals, which ranged from \$1.91 per visitor day (Great Gulf) to \$17.22 per visitor day (Bristol Cliffs), averaging \$3.79. Guldin argued that these costs are much larger than is commonly assumed, and that they raise serious questions of land use allocation as well as equity in recovering costs from beneficiaries.\*

\* Additional studies of developed forest recreation costs are Argow and Fedkiw, 1963; Gibbs, Queirolo, and Lomnicki, Gibbs and VanHees, and Strauss, 1979. The major treatises in the field include little or nothing on the costs of dispersed recreation; Clawson & Knetsch, 1964; Brockmann, 1979; Hughes & Lloyd, 1977; Robinson, 1976; Ruth Assoc., 1969; Hondee, Stankey, and Lucas, 1979.



### STUDY AREAS

The study areas are four distinctively different back-country recreation areas in Maine (Fig. 1). They represent a diversity of ownership and management objectives. They all receive heavy use for hiking, canoeing, hunting and fishing, and primitive camping. Several enjoy regional and national reputations. Trends in use during the 1970's have been mixed (Wagner and Spencer, 1979).

**Baxter State Park.** Baxter Park is a 200,000 acre wilderness in north central Maine. It was established through gifts to the State by the late Governor Percival P. Baxter. It is administered by the Baxter Park Authority, which acts as trustee for the citizens of the State (Baxter Park Authority, 1978).

The scenic centerpiece of the Park, and the motive for its creation, is Mt. Katahdin, the northern terminus of the Appalachian Trail. The Park serves trail hikers, campers who use motorized access to developed campsites, day hikers, hunters and fishermen, and other dispersed recreationists.

**Moosehorn National Wildlife Refuge.** The Moosehorn Refuge was established by the Fish and Wildlife Service in 1937, as a way station for woodcock. It consists of two units totaling 22,655 acres. It contains low rolling terrain with considerable marshy area and brushy woodland. Active wildlife management is underway. The refuge includes two dedicated wilderness areas totaling 7,462 acres. Recreational use is considerable, including hunting and day use (U.S. Fish and Wildlife Service, 1971).

**North Maine Woods.** North Maine Woods manages 2.5 million acres of forest land in northern Maine for 30 different owners, with only about 2% in public ownership. The objectives of the organization are to maintain primitive recreation sites, to register visitors using privately owned road systems, and to assist in controlling public use for fire control and other purposes. This vast region has virtually no permanent populations, no public roads and no local government.

Recreational use consists of fishing, hunting, canoeing and camping, with access mostly by air or by vehicle over private roads. In the 1970's, visitor use has fluctuated from 43,000 to about 56,000 visitors per season, with a rising trend. The organization obtains about 2/3 of its income from visitor fees, with the balance from dues paid by member landowners.

**Allagash Wilderness Waterway.** The Allagash Wilderness Waterway was created by State law in 1966, following a long federal-state study effort. It was given federal Wild

TABLE 1. ANNUAL DIRECT MANAGEMENT COSTS  
(Opportunity costs not included)

AREA AND YEAR AVERAGE	ACREAGE	ANNUAL MANAGEMENT COSTS	VISITOR DAYS	COST PER VISITOR DAY	COST PER ACRE
4 New England Wilderness areas, FY 1977. <sup>1</sup>	42,000 (Total 4 areas)	\$191,300	50,414	\$3.79	\$4.54
Baxter State Park CY 1978	200,000	534,000	107,453	4.98	2.66
Allagash Wilderness Waterway FY 1977-78	23,000	135,000	45,000	3.00	5.95
Moosehorn NWR CY 1978	22,665	80,000 <sup>2</sup>	24,308 <sup>3</sup>	3.29 <sup>3</sup>	3.53
North Maine Woods. 1978	2,500,000	207,000	152,430	1.36	.08

1. Lye Brook, Bristol Cliffs, Great Gulf, Presidential - Dry River. Data from Guldin (1979).

2. Costs excluding wildlife habitat manipulation outlays.

3. Number of visits - many of short duration and hence not comparable with other data in these columns.

TABLE 2. THE ROLE OF OPPORTUNITY COSTS

AREA AND YEAR	ANNUAL OPERATING COSTS	ANNUAL OPPORTUNITY COSTS*	TOTAL
Baxter Park CY 1978	\$533,834	\$3,000,000	\$3,533,834
Allagash Waterway FY 77-78	\$134,978	\$345,000**	\$479,978
Moosehorn Refuge	\$80,000	\$340,000	\$420,00

\* Land valued at \$150 acre; opportunity cost assumed to be equal to 10% annual interest on market value of land.

\*\* Any increased costs attributable to regulation of private logging in the one mile corridor are not included.

River Status in 1970. The 92-mile corridor is protected by a state-owned land strip of about 23,000 acres and a one mile corridor on either side within which private logging is regulated to reduce aesthetic disturbance and erosion. The Waterway contains 72 campsites, managed by a staff of 3 permanent and 13 seasonal employees. The level of summer use of the Waterway increased from 25,000 to 50,000 visitor-days between 1966 and 1973; it averaged 45,000 visitor-days between 1974 and 1979. The number of persons visiting annually has been stable since 1972 at 8 to 10 thousand. Winter use is limited to snowmobiling and ice fishing, counts of which are unavailable (Anon., 1980; Cieslinski, 1980).

#### COSTS

The direct cash costs of supplying backcountry recreation in Maine are substantial (Table 1). Costs range from \$1.36 per visitor day for an extensive primitive vehicular campsite system to about \$5.00 per visitor day for Baxter State Park, which also receives high vehicular traffic. On a per acre basis, the costs vary widely. The lowest are for the North Maine Woods system, whose sites are dispersed over a vast 2.5 million acre forest landscape.

The cost data employed here were obtained from the

managers of the areas studied. They are based upon accounting records kept for budget and control purposes, and not on carefully constructed economic analyses. They are rough estimates only. The data cannot be assumed to be strictly comparable from area to area. Because of the relatively low wage levels prevailing in Maine, and the fact that differing degrees of differed maintenance exist on these areas, comparisons with other areas of the country may be misleading. These figures lump together expenditures on policing, cleanup, trail and road maintenance, and other management functions. Finally, they do not account for depreciation on past capital outlays.

In addition, these are relatively small areas. They are larger than the areas studied by Guldin, but smaller than those in western states. Cost comparisons should take size, intensity of use per acre, and other variables into account. Using these figures to study costs in relation to acreage alone is not justified.

Prominent costs of supplying wilderness recreation are land use opportunity costs. These are the economic values, or opportunities, foregone to manage an area as a wilderness. There are several ways to estimate total opportunity costs of a wilderness area. The method of residual value appraisal has often been applied (Merriam, 1964; Outdoor Recreation

TABLE 3. REVENUES AND COSTS

AREA	COSTS	REVENUES	REVENUE/COST
4 N.F. Wilderness Areas in New England	\$191,300	-	-
Baxter State Park	534,000	\$146,000*	.27
Allagash Wilderness Waterway	135,000	45,000	.33
Moosehorn NWR	80,000	-	-
North Maine Woods	207,000	142,000	.68

\* User fees only. The park receives about 3/5 of its annual income in the form of revenues from trusts created by Governor Baxter to fund park management.

Resources Review Comm., 1963; Jones, et al, 1978; McKillop, 1978; Beardsley, et al, 1977). As an example, Guldin (1980) estimated for the Lye Brook Wilderness that direct management costs were \$36,774, capital costs (annualized) were \$26,876, and timber opportunity cost (also annualized) was \$19,573. Alternatively, opportunity cost could be viewed as the annual interest charge on the current market value of the property, inferred from sales of similar land nearby. For small tracts such an approach might be fully satisfactory, as a method of stating a broad estimate for opportunity cost. The latter procedure is used in Table 2, which shows that opportunity costs are a large part of total cost of managing wilderness areas.

### IMPLICATIONS

Providing backcountry recreation in Maine entails substantial direct budgetary costs for land managing agencies. It is fair to say that these costs amount to about \$3 to \$5 per visitor day, or about \$2.50 to \$6.00 per acre per year, for the typical small area. Annual outlays for backcountry management are roughly \$1 million per year in the 4 study areas. Since these costs are largely for personnel, they will rise rapidly with inflation in the years ahead. Since some areas may not be currently keeping up with trail deterioration and building maintenance now, severe financial pressures are in prospect.

The cost estimates reported here are crude and should not be considered precise estimates of true economic costs, but they are consistent with more careful estimates made on nearby federal areas (Guldin, 1980). They indicate that the question of higher user fees for backcountry recreation will become increasingly important in the future.

Higher contributions to backcountry management costs should be sought from the recreational users. There are three major reasons. First, recreationists in the backwoods are a minority who do not need to be subsidized by the general taxpayer. Second, the maintenance and protection needs of these areas are not now being met by agency appropriations. The only source of expanded funding is the users who benefit directly from the management programs. This approach has been used with great success by hunters, fishermen, and snowmobilers. Finally, pricing backcountry recreation below costs artificially encourages use and contributes to congestion. As a practical matter, however, we do not know how much use would decline if full-cost pricing were used.

Evidence suggests that recreationists are prepared to pay higher user fees for most outdoor recreation activities (Economics Research Associates, 1976). A recent report by the U.S. General Accounting Office (1980) urges federal agencies to make greater use of user fees. Guldin (1979) reviews some of the practical problems. A number of practical options such as entrance fees, equipment, taxes, and wilderness stamps are available. The recreation economics community and public land administrators should explore all of the options thoroughly.

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