



# **THE ECONOMIC IMPACT OF THE PROPOSED MAINE WOODS NATIONAL PARK & PRESERVE**



**Thomas Michael Power, Ph.D.**  
September 2001





**THE ECONOMIC IMPACT OF THE PROPOSED  
MAINE WOODS NATIONAL PARK & PRESERVE**

**Thomas Michael Power, Ph.D.**

September 2001

This report was made possible with funding from The Moriah Fund, New England Biolabs Foundation, The Sudbury Foundation, Temper of the Times Foundation, and several individual donors.

A draft of the study was sent to more than forty economists, business leaders, conservationists, and citizens in Maine. I would like to thank all the individuals who reviewed the report. I did my best to incorporate their suggestions. Their input helped make this report more relevant to the debate about the future of Maine's forests and economy.

Photos donated courtesy of Missing Lynx Photography.

For additional copies of this report, please contact:

RESTORE: The North Woods  
9 Union Street  
Hallowell, Maine 04347  
(207) 626-5635

[www.restore.org](http://www.restore.org)  
[mainewoods@restore.org](mailto:mainewoods@restore.org)

© RESTORE: The North Woods 2001

# T

## ABLE OF CONTENTS

|                                                                                                                               |           |                                                                                                                                     |            |
|-------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>INTRODUCTION.....</b>                                                                                                      | <b>1</b>  | <b>CHAPTER IV. THE NET ECONOMIC IMPACT OF THE<br/>PROPOSED MAINE WOODS NATIONAL PARK.....</b>                                       | <b>53</b>  |
| The Maine Woods National Park and<br>Preserve Proposal                                                                        |           | A. Introduction and Summary                                                                                                         |            |
| The Purpose and Scope of This Report                                                                                          |           | B. Quantifying the Potential Change in Forest<br>Products Jobs                                                                      |            |
| About the Author                                                                                                              |           | C. A Billion Dollar Bite Out of a Six Billion<br>Dollar Industry?                                                                   |            |
| <b>CHAPTER I. THE ECONOMIC FUTURE OF NORTHERN<br/>MAINE UNDER A "WORKING FOREST" APPROACH.....</b>                            | <b>9</b>  | D. National Park Visitation-Supported<br>Employment Impacts                                                                         |            |
| A. Introduction and Summary                                                                                                   |           | E. Amenity-supported Employment Impacts                                                                                             |            |
| B. The Relative Importance of the Forest Products<br>Industry in Maine                                                        |           | F. National Park Fees and Public Access                                                                                             |            |
| C. Trends in the Forest Products Industry                                                                                     |           | G. Are the Maine Woods Different?                                                                                                   |            |
| D. Timber Supply in Maine                                                                                                     |           | <b>CHAPTER V. THE IMPACT OF THE PROPOSED<br/>MAINE WOODS NATIONAL PARK ON STATE AND<br/>MUNICIPAL TAX REVENUES.....</b>             | <b>71</b>  |
| E. The Competitive Position of Maine's<br>Paper Industry                                                                      |           | A. Introduction and Summary                                                                                                         |            |
| F. The Future of the Forest Products-Dependent<br>Communities                                                                 |           | B. Federal Payment in Lieu of Taxes (PILT) and<br>Other Local Government Support Programs                                           |            |
| <b>CHAPTER II. THE IMPACT OF THE PROPOSED NATIONAL<br/>PARK ON THE MAINE FOREST PRODUCTS INDUSTRY.....</b>                    | <b>27</b> | C. The Unorganized Townships Potentially Affected<br>by the Proposed Maine Woods National Park                                      |            |
| A. Introduction and Summary                                                                                                   |           | D. The Organized Municipalities Potentially Affected<br>by the Proposed Maine Woods National Park                                   |            |
| B. The Timber Harvest Associated with the<br>Proposed Maine Woods National Park Area                                          |           | E. Impacts on Government Revenues in the<br>Context of a Dynamic Economy                                                            |            |
| C. The Impact of Harvest Reductions in the<br>Area of the Proposed Maine Woods National<br>Park on Forest Products Employment |           | <b>CHAPTER VI. THE ECONOMIC IMPACT OF THE<br/>PROPOSED MAINE WOODS NATIONAL PARK IN<br/>THE BROADER SOCIO-ECONOMIC CONTEXT.....</b> | <b>79</b>  |
| <b>CHAPTER III. THE ROLE OF NATIONAL PARKS IN<br/>PROMOTING LOCAL ECONOMIC VITALITY.....</b>                                  | <b>37</b> | A. Introduction                                                                                                                     |            |
| A. Introduction and Summary                                                                                                   |           | B. Shared Socio-economic Concerns                                                                                                   |            |
| B. National Park Area Analysis                                                                                                |           | C. How the Proposed Maine Woods National<br>Park Would Address These Concerns                                                       |            |
| C. Individual National Park County Analysis                                                                                   |           | D. The Role of Change in Northern Maine's<br>Economic Future                                                                        |            |
| D. Economic Vitality in Recently Created<br>National Parks                                                                    |           | <b>CONCLUSIONS.....</b>                                                                                                             | <b>93</b>  |
| E. National Parks and Economic Expansion:<br>Interpreting These Results                                                       |           | <b>APPENDICES.....</b>                                                                                                              | <b>99</b>  |
| F. National Parks, Amenities, and Local<br>Economic Vitality                                                                  |           | <b>REFERENCES.....</b>                                                                                                              | <b>105</b> |
| G. Conclusion                                                                                                                 |           |                                                                                                                                     |            |



## EXECUTIVE SUMMARY

The Maine Woods have long been recognized for its important biological, cultural, recreational, and economic values. In the early 1980s the State of Maine characterized the more than 10 million acres of wildlands in the Maine Woods as “the largest predominantly undeveloped area in the Eastern United States, and one of the few regions in the Eastern United States where conservation of large areas of woodland is possible.”

Toward this end, in 1994 the regional conservation organization, RESTORE: The North Woods, proposed the creation of a 3.2-million acre Maine Woods National Park and Preserve. According to RESTORE,

The heart of the Maine Woods deserves to be protected as a new national park. As a national park, the natural wonders of the region would belong to the public. The land, water, and wildlife would be preserved as priceless parts of our national heritage, safe from exploitation. Vast wildlands would offer solitude and spiritual renewal to civilization-weary people. And the Park would strengthen local economies by creating jobs in tourism, recreation, and ecological restoration.

The potential benefits of the National Park claimed by advocates have not convinced everyone. Questions have been raised about the possible cultural, social, and even environmental impacts of the proposed Park. Some of the strongest concerns have been economic.

- What would the creation of such a large National Park in northern Maine do to timber harvests and to the forest products industry that relies on the fiber from those harvests?
- If the proposed Park would cause a significant decline in the forest products industry, what would the impact be on the economic well being of families and communities in northern Maine and elsewhere in the state?
- How would shifting a significant amount of land from private to public ownership affect tax revenues?

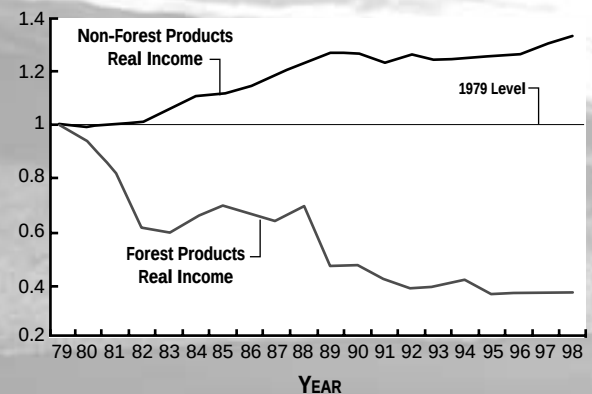
This report was commissioned to address these and other economic questions associated with the Maine Woods National Park proposal. Among the key findings are:

### **The decline of forest products employment is harming the northern Maine economy.**

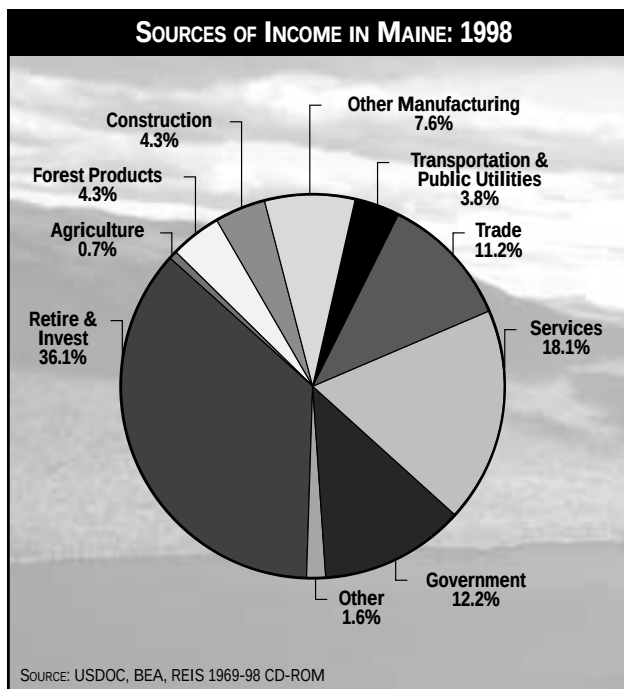
If they could, most people in northern Maine would probably choose a future similar to the past, at least the more prosperous times of the past. Generations have grown up in a region and landscape dominated by the forest products industry, which manages the land primarily for the commercial growing and harvesting of wood fiber.

### **REAL INCOME IN FOREST PRODUCTS COMPARED TO THE REST OF THE ECONOMY: PISCATAQUIS COUNTY, MAINE, 1979-1998**

INDEX OF CHANGE:  
1979 = 1.0



SOURCE: USDOC, BEA, REIS, 1969-98 CD-ROM



Over time, however, as the Maine economy has developed and diversified, the relative importance of forest products has declined. In 1998 only about 4 percent of all Maine personal income and jobs were directly derived from the lumber and wood products and pulp and paper industries combined. Employment in forest products across Maine has fallen significantly and is projected to continue to fall. Adjusted for inflation, wages in wood products, including logging, have also been in decline. The combination of dwindling jobs and declining wages has hit timber-dependent communities doubly hard.

These declines during past decades have taken place during a period of rising timber harvest. But harvest of many commercial tree species in recent years has exceeded net forest growth by a considerable margin. To stay within sustained yield, Maine forest harvests will have to be reduced. This could further accelerate the decline in forest products employment in Maine.

Even if timber harvests are maintained at their current levels and improvements in labor productivity reduce employment at no faster rate that has been experienced since 1952, forest products jobs can be expected to decline by about 30 percent per decade. During the next decade that would represent a loss of 7,600 forest products jobs, 50 percent more than the 5,000 jobs lost between 1989 and 1998.

The decline in forest products employment has already had a substantial negative impact on northern Maine. Aroostook, Piscataquis, and Penobscot Counties all lost population during the 1990s, mostly to out-migration. It is evident that northern Maine is not on a healthy economic and demographic trajectory.

#### **Economic recovery in Northern Maine will require diversification of the economic base.**

For northern Maine to reverse its economic decline and loss of population, its economy has to change. "More of the same" is neither possible nor desirable. Change in the form of diversification of the region's economic base is crucial if a more vital economy that can support at least the existing population is going to develop.

Communities concerned about economic stability have little choice but to play to their strengths and uniqueness. Around the country, including in other parts of Maine, as natural resource industries have declined as sources of employment and income, high quality natural landscapes have successfully supported the development of alternative economic bases.

This is amply demonstrated by the economic vitality found along the Maine Coast despite the declines in commercial fishing and other maritime industries. It is also demonstrated by the growth in neighboring New Hampshire and Vermont and in the

| ANNUAL ECONOMIC GROWTH RATES, 1969-1998, IN NORTHERN MAINE AND LARGE NATIONAL PARK COUNTIES |                                                               |                                                                 |                    |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|--------------------|
| Economic Indicator                                                                          | Large National Park Counties<br>(45 counties)<br>(unweighted) | Proposed MWNP<br>3 Northern Maine Non-<br>Metropolitan Counties | Piscataquis County |
| Job Growth                                                                                  | 3.7%                                                          | 0.6%                                                            | 1.0%               |
| Real Income Growth                                                                          | 4.3%                                                          | 1.5%                                                            | 1.6%               |
| Population Growth                                                                           | 2.8%                                                          | -0.1%                                                           | 0.4%               |

Sources: USDOC, BEA, REIS, 1969-1998 CD-ROM

"resettlement" of the Mountain West. For example, in the Rocky Mountain region, in rural areas with only small towns, the more of the land base in National Wilderness, Parks, Monuments, etc. the higher the measures of local economic vitality. The future economic vitality of northern Maine will partially depend on protecting the region's natural landscapes.

### **National Parks in other rural regions have had a strong, positive impact on the local economy**

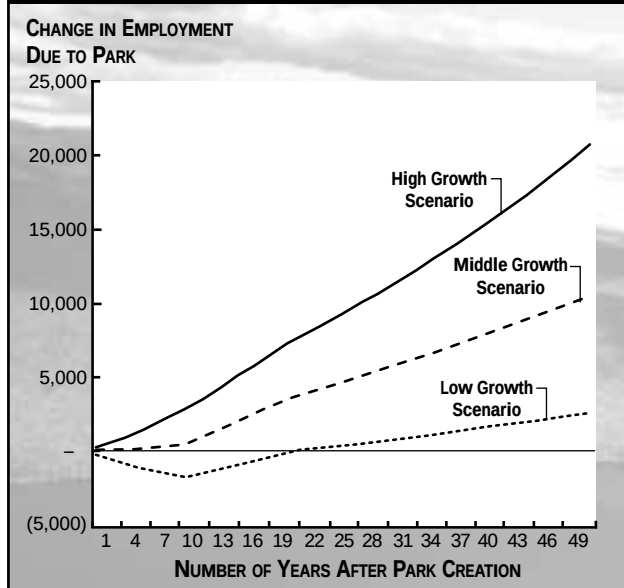
National Parks are usually located in rural areas where the historical natural resource industries that supported those areas in the past are often in long-term decline as sources of employment and income. In that setting National Parks have often provided a crucial economic bridge to a new, more diverse economic base that combines the down-sized natural resource industries with the economic activity drawn to the area by the same natural amenities that led the National Park to be created. Part of this is associated with Park visitation (tourism) but most of it is associated with the relocation of new permanent residents and non-tourist businesses that are attracted to the high quality environments protected by the National Park.

As a part of this study, a quantitative analysis was conducted of all of the large National Parks in the lower 48 United States. That analysis found that National Parks tend to have a strong, positive impact on local economic vitality. Specifically, job, aggregate income, and population growth rates were almost universally much higher in the counties and communities surrounding National Parks than in areas not adjacent to National Parks over the last 30 years. For example:

- Aggregate real income grew twice as fast as the national average.
- Job growth was almost three times the national average.
- Population growth was almost four times the national average.

This pattern also holds true in Maine, where the Acadia National Park region has experienced much greater economic vitality than the area of the proposed Maine Woods National Park.

# NET DIRECT IMPACT OF THE PROPOSED MAINE WOODS NATIONAL PARK ON REGIONAL EMPLOYMENT: THREE SCENARIOS



## The creation of a Maine Woods National Park is projected to have a net positive impact on the northern Maine economy.

The study concludes that the creation of a Maine Woods National Park represents an action that could contribute significantly to the transition to a more diverse and sustainable northern Maine economy. This new source of economic vitality could help to offset the unavoidable declines in the forest products sector.

The net impact of the proposed Maine Woods National Park is projected to be an additional one percent annual growth in employment in the area immediately around the proposed Park. That is a job gain of about 100 new jobs per year in the early years, rising to an addition of 300 new jobs per year 20 years later. Specifically:

- New residents drawn to the area by the protected natural landscapes could be responsible directly for 3,600 jobs. These jobs would be associated with the new businesses drawn to the area and the normal mix of businesses that support households in any location.
- Visitors to the Park could generate directly about 1,500 new jobs, assuming between one and three million visitor days per year. Only about a quarter of the jobs associated with the proposed Park would be “tourist” jobs.
- Average income is likely to increase, based on the experience of communities near existing National Parks. The study compared Acadia National Park with the proposed Maine Woods National Park. Thirty years ago the average income in both regions was about \$13,000. In 1998 the average income in the Acadia region was \$24,500, or about \$7,000 above the \$17,500 average in Piscataquis and Somerset Counties.
- The creation of a Maine Woods National Park would have only small impacts on state and local government finances. During the first decades of the National Park’s existence, the federal government would make transition payments and payments in-lieu-of-taxes that would represent a small net gain in government revenue.
- Commercial logging would be phased out on lands as they were acquired for the new Park, reducing state timber harvests by a projected 11 percent over a period of a decade or more. This means that almost 90 percent of Maine’s harvest would be unaffected. Even if no National Park is created however, future timber harvests in the area are likely to be substantially below recent harvests, by as much as 30 percent.
- About 1,500 forest products jobs could be phased out due to the conversion of commercial forestland to a National Park. However, in light of the economic decline being suffered by the forest products dependent communities in northern Maine, the impact of the proposed Park on forest products employment would be quite modest. Any losses would be more than offset by the job growth stimulated by the new park.

---

The decision by the public to accept or reject the establishment of a new Maine Woods National Park is a difficult one. In order to help the decision-making process, the study sought to provide a realistic assessment of the northern Maine economy. Based on this assessment, the report concludes that Maine faces a choice between two scenarios, one with and one without a National Park, both of which include declining jobs and payroll in the forest products industry. In either case, forest products is projected to be an important, but shrinking, part of the Maine economy whether or not a National Park is created.

Based on the history of most existing Parks, the proposed Maine Woods National Park would probably be established over several decades. The economic impacts, both positive and negative, would not be felt suddenly but would be spread over a long period of time. This would allow adjacent communities and the state ample time to adjust productively to the economic opportunities and changes presented by the Park. In other words, the study projects neither rapid, disruptive growth nor economic collapse resulting from the creation of the proposed Maine Woods National Park. Instead, it foresees economic stabilization and gradual expansion.

The character and quality of the small towns that would be gateways to the proposed Maine Woods National Park would not have to be sacrificed to crowding and overdevelopment. Experiences with existing National Parks indicate that communities can guide the growth that comes with increased economic activity. Indeed, National Parks can improve rather than damage overall quality of life.

**The Maine Woods National Park proposal merits further public study and careful consideration.**

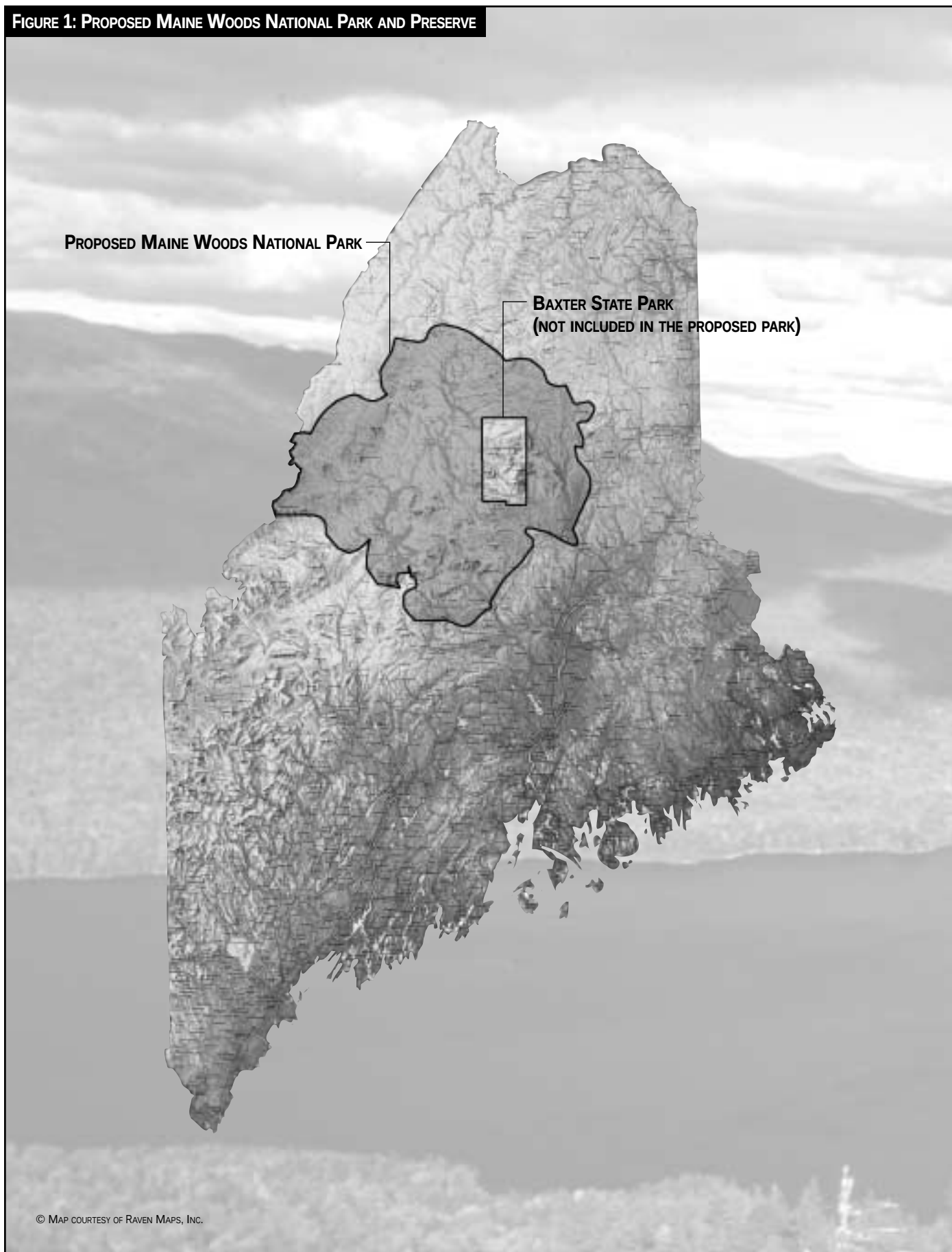
The purpose of this study was not to recommend whether or not a new Maine Woods National Park and Preserve should be created. However, the findings of the study indicate that the Park could have significant positive economic impacts. Moreover, it concludes that many of the economic concerns that have been voiced about the National Park proposal may not be factually based. Although the conclusions of the study are preliminary, they indicate that such a Park could be consistent with the social, environmental, and quality of life concerns important to local people.

Clearly, the creation of a Maine Woods National Park would have far-reaching consequences for the land and people of northern Maine. Therefore, the report recommends that a thorough, independent feasibility study of the Park proposal be conducted with the full participation of the people of Maine. This study could provide in-depth analysis of the complex issues involved, encourage additional public discussion, and promote careful consideration of all available options before a decision is made whether or not to create a Maine Woods National Park and Preserve.

**FIGURE 1: PROPOSED MAINE WOODS NATIONAL PARK AND PRESERVE**

**PROPOSED MAINE WOODS NATIONAL PARK**

**BAXTER STATE PARK**  
**(NOT INCLUDED IN THE PROPOSED PARK)**



## INTRODUCTION

### The Maine Woods National Park and Preserve Proposal

The Maine Woods has long been recognized for its important biological, cultural, recreational, and economic values.<sup>1</sup> Indeed, in the early 1980s the State of Maine characterized the more than 10 million acres of wildlands in the Maine Woods as “the largest predominantly undeveloped area in the Eastern United States, and one of the few regions in the Eastern United States where conservation of large areas of woodland is possible.”<sup>2</sup> By the late 1990s the State could still describe it as “the largest block of undeveloped forestland in the Northeast...a unique natural area with a distinct character.”<sup>3</sup>

The 1990 *Northern Forest Lands Study* gave national recognition to the Maine Woods and the 26-million acre Northern Forest region of which it is the largest part. It also documented growing threats to the integrity of the region’s resources and called for public action to address those threats. *The Northern Forest Lands Study* concluded that

natural resources and opportunities for public recreation in the Northern Forest are of national significance. The states should work together with the federal government to develop solutions to the changes in land use that threaten the Northern Forest. The solution should incorporate programs to protect the natural resources and to address the economic and social needs of communities in the region. Traditional solutions will not meet the challenge of long-term protection of the integrity and traditional uses of the Northeast’s last remaining expanse of wildland. The challenge requires innovative solutions and a willingness to explore different ways of thinking.<sup>4</sup>

The publication of the *Northern Forest Lands Study* marked the beginning of an era of intense public attention on the region. It also prompted various initiatives aimed at addressing the challenges facing the Maine Woods and greater Northern Forest area.

Toward this end, in 1994 the regional conservation organization, RESTORE: The North Woods, proposed the creation of a Maine Woods National Park and Preserve (hereafter referred to as National Park or Park) in the north-central part of the state. (See Figure 1.) As described in a 1994 RESTORE brochure,

The heart of the Maine Woods deserves to be protected as a new national park. As a national park, the natural wonders of the



*The Maine Woods has long been recognized for its important biological, cultural, recreational, and economic values.*

<sup>1</sup>Lloyd C. Irland, *Land, Timber, and Recreation in Maine's Northwoods* (Orono, ME: Maine Agricultural and Forest Experiment Station, Misc. Pub. 730, 1996).

<sup>2</sup>Maine Land Use Regulation Commission, *Comprehensive Land Use Plan* (Augusta, ME: Maine Department of Conservation, 1983), p. 3.

<sup>3</sup>Maine Land Use Regulation Commission, *Comprehensive Land Use Plan* (Augusta, ME: Maine Department of Conservation, 1997), p. 15.

<sup>4</sup>Stephen E. Harper, Laura L. Falk, and Edward W. Rankin, *Northern Forest Lands Study* (Rutland, VT: USDA Forest Service, 1990), p. vi.



**RESTORE also contends that the proposed Maine Woods National Park would be good for the economy.**

region would belong to the public. The land, water, and wildlife would be preserved as priceless parts of our national heritage, safe from exploitation. Vast wildlands would offer solitude and spiritual renewal to civilization-weary people. And the Park would strengthen local economies by creating jobs in tourism, recreation, and ecological restoration.<sup>5</sup>

RESTORE contends that the proposed Maine Woods National Park “would protect one of the most important concentrations of ecological, recreational, and cultural features in the United States.”<sup>6</sup> The Park is described as encompassing:

- 3.2 million acres of wildlands, an area larger than Yellowstone and Yosemite combined, making it the second biggest national park in the contiguous U.S.;
- thousands of miles of clear-running rivers and streams, including the headwaters of five of America’s legendary rivers—Allagash, Aroostook, Kennebec, Penobscot, and St. John;
- a wide variety of natural wonders, including some of New England’s last old-growth forests; scenic landscapes of lush green forests punctuated by steep mountains; powerful waterfalls and rapids; scores of remote lakes and ponds; and deep canyons and gorges;
- critical habitat for endangered and sensitive wildlife, and the rare opportunity to restore a healthy ecosystem that includes the full range of native species;
- wilderness recreation on an Alaskan scale, featuring more than 1,250 miles of hiking trails, including the famed Hundred Mile Wilderness section of the Appalachian Trail; thousands of miles of wild streams; and world-class angling and hunting opportunities;
- a hundred centuries of human history, including Native American sites, places explored by Thoreau and other adventurers, and important early logging-era artifacts.<sup>7</sup>

RESTORE also contends that the proposed Maine Woods National Park would be good for the economy. The organization has been outspoken regarding the current economic status of northern Maine and the potential economic benefits of a National Park.

“The economy of northern Maine is in serious trouble. The forest products industry, traditionally the economic backbone of the state, is declining. Thousands of jobs have been cut due to mechanization, phasing out of inefficient mills, and overcutting of the forest. In the past two decades, more than 40 percent of logging

<sup>5</sup>RESTORE: The North Woods, *Proposed Maine Woods National Park & Preserve: A Vision of What Could Be* (Concord, MA, 1994).

<sup>6</sup>RESTORE: The North Woods, *America’s Next Great National Park: Preserving Our Maine Woods Legacy* (Augusta, ME and Concord, MA, 1999).

<sup>7</sup>Ibid., p 6.

jobs and 20 percent of mill jobs have been lost. Unemployment in Maine's northern counties typically runs several times higher than the national average.

National Parks offer economic opportunity to local communities. Each year Acadia National Park helps to bring over \$100 million to the economy of coastal Maine. One study found that a Maine Woods National Park could generate several times that amount in annual retail sales, and support up to 20,000 new jobs. Clean service industries are drawn to national parks because of the high quality of life they offer to employees. New jobs could include education, trade, information, finance, business, health care, legal services, transportation, and other well-paying professions. Meanwhile, 80 percent of the commercial forestland in Maine would remain available to support timber jobs.”<sup>8</sup>

The potential benefits claimed by National Park advocates have not convinced everyone. Questions have been raised about the possible cultural, social, and even environmental impacts of the proposed Park. Some of the strongest concerns, however, have been economic: what would the creation of such a large National Park in northern Maine do to timber harvests in Maine and to the forest products industry that relies on those timber harvests? If the proposed Park would cause a significant decline in the forest products industry, what would the impact of that be on the economic well-being of families and communities in northern Maine and elsewhere in the state?

These and other economic concerns about the proposed National Park have been vigorously raised in Maine. The following is typical of most public concerns raised about the economics of the Park.

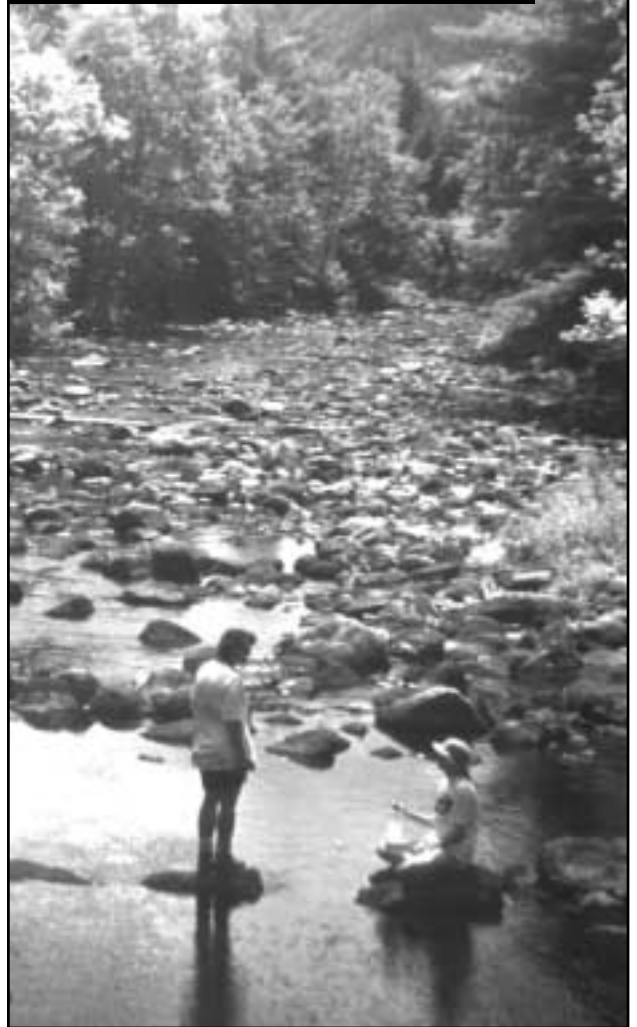
“RESTORE is absolutely correct when it says the proposed park land is the greatest remaining wildland in the Eastern U.S., a place ranking as a national treasure.

It is also correct when it says corporate landowners have not always treated the working forest kindly. With all the clearcutting, pesticide spraying and road building that has gone on, nature is in serious need of healing.

RESTORE even has a valid point when it says a North Woods National Park could be created for less than the cost of a B-2 Stealth bomber. There's no doubt this country wastes billions on the defense establishment, money that could be better spent elsewhere.

Yet RESTORE's logic is shaky on the question of economics. It claims the forest industry is in serious decline, and the public would benefit more from having a North Woods under federal

***[W]hat would the creation of such a large National Park in northern Maine do to timber harvests in Maine and to the forest products industry that relies on those timber harvests?***



<sup>8</sup>Ibid., p. 13. The study cited is: Michael J. Kellett and James A. St. Pierre, *Gateway to a Healthy Economy: The Proposed Maine Woods National Park and Preserve and the Future of the Moosehead Region of Maine* (Concord, MA, and Augusta, ME: RESTORE: The North Woods, 1996).



***[S]ome people have made very strong assertions predicting economic catastrophe for the region and state if the Maine Woods National Park were created.***

park protection than it does from the woods' present role as a supplier of raw material for area industries.

That's not likely. For one thing, the 'decline' of the forest products industry is difficult to see if you stand in Dover-Foxcroft's Monument Square and watch the logging trucks grind by all day. Jobs created in woods-related jobs are vital in these parts."<sup>9</sup>

On the other hand, some people have made very strong assertions predicting economic catastrophe for the region and state if the Maine Woods National Park were created.

"If we want to see a model of what could happen to Maine with the shutdown of so much timberland, let's take a look at the Pacific Northwest. In the Pacific Northwest all harvesting was prohibited on federal and state lands and that's the majority of their lands, due to the listing of the Spotted Owl on the endangered species list.

Sure, it's a different reason for shutting down the woods but the outcome would be the same. Tens of thousands of jobs were lost and communities collapsed. In fact, one community petitioned the federal government to become a 'disaster area' and got it. How many towns in this state would suffer this fate? To put it bluntly, if our harvesting operations were shut down, the only people who could afford to fish, hunt and hike in the Maine North Woods would be non-Mainers. In the Pacific Northwest the people didn't begin to respond until it was too late. Let's not let that happen here...

For every job created in tourism for this park, 100 will be lost from timber-related industry closings. That has a ripple-out effect that boggles the mind. I'm a union man and job security is our goal. Perhaps...RESTORE doesn't have to worry about finances. Well, the rest of us who work for a living, do."<sup>10</sup>

The debate over the economics of the proposed Maine Woods National Park has often been heated. Yet in the past there has simply not been adequate information available to allow either advocates or skeptics to speak with authority. No one had done a thorough assessment of the impacts of creating a large park or wilderness in Maine. As a result, it was difficult for the public to make an informed decision on this important issue.

### **The Purpose and Scope of This Report**

National Parks are almost never created primarily for economic reasons. Their primary purposes are the preservation of unique natural and cultural landscapes and protection of public access.

<sup>9</sup>"Park proposal won't fly," *The Piscataquis Observer* (Dover-Foxcroft, ME, editorial, August 23, 1995).

<sup>10</sup>Don Barker, Northeast regional director, Pulp and Paperworkers Resource Council, "RESTORE's plan for northern Maine park is a bad idea," *Lewiston Sunday Sun-Journal* (Lewiston, ME, op-ed, August 27, 1995).

However, concerns about the creation of National Parks almost always include a strong economic component. For example, some people see National Parks as “locking up” commercially valuable natural resources, effectively depriving surrounding businesses and communities of the opportunity to exploit their potential. This is a major concern in communities and regions that see themselves as particularly dependent on natural resource industries and continued access to natural resource supplies.

This report was commissioned to address these and other economic questions associated with the Maine Woods National Park proposal. In doing so, the report focuses on the likely economic impacts of the two major approaches toward ownership, management and use of the Maine Woods that are currently under active consideration by the public. These two approaches are not necessarily mutually exclusive, but they each represent a significantly different set of priorities for the region.

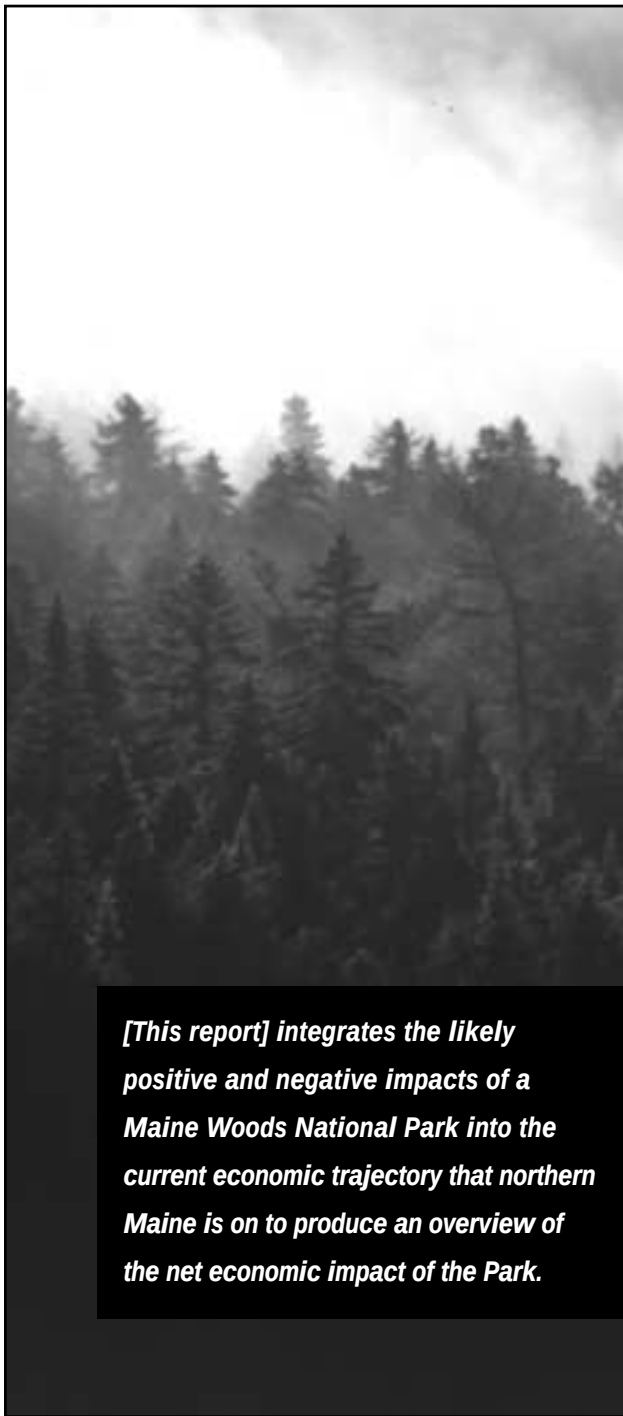
- The report first analyzes the economic implications of maintaining most of the region as a “working forest” where land is predominantly under private and corporate ownership and timber harvesting is the primary land use. Consistent with this approach are several efforts currently underway to maintain the “working forest” while seeking improved timber harvest practices, restrictions on development, and public access for continued recreational uses.
- The second approach that we address is the proposal to create a Maine Woods National Park and Preserve where one-fifth of Maine’s commercial timberlands would be protected from resource extraction and development. Under this proposal, four-fifths of the Maine Woods would continue to be available for timber harvesting. If the Park were authorized by the U.S. Congress, parklands would be acquired gradually, by the public, from willing sellers. The Park area would be restored to a natural condition and managed for wildlife habitat, water quality, as well as wilderness recreation, historic preservation, public education, and other public values.

Some readers may wonder why other approaches for the Maine Woods beyond these two were not directly analyzed. For example, there are projects planned or completed on well over a million acres that include public or nonprofit acquisition of key lakeshores and other selected tracts, as well as large-scale public or private no-development conservation easements, and “green” certification of timberlands.<sup>11</sup> Such initiatives can protect important values in the Maine Woods. However, they do not represent a separate econom-

*[T]he report focuses on the likely economic impacts of the two major approaches toward ownership, management and use of the Maine Woods that are currently under active consideration by the public.*



<sup>11</sup>Examples include large-scale conservation easements such as the Pingree Forest Project and the West Branch Project, forest certification programs such as the Forest Stewardship Council and Sustainable Forestry Initiative, and public and private land acquisition programs such as The Nature Conservancy’s St. John River Project and the State of Maine’s Land for Maine’s Future Program.



*[This report] integrates the likely positive and negative impacts of a Maine Woods National Park into the current economic trajectory that northern Maine is on to produce an overview of the net economic impact of the Park.*

ic trajectory. Instead, they have the potential to complement either of the two approaches described above. They are consistent with the first approach because they seek to maintain the Maine Woods as a predominantly private timberland while improving protection of important public values. Yet they also could complement the vision of the Maine Woods National Park, which seeks large-scale landscape preservation for the public benefit. The analysis in this report assumes that such strategies will continue to be an important part of the trend toward better protection of the Maine Woods.

The report also does not assess additional strategies that may be beneficial but are not being actively pursued by local, state, or federal government, business interests, conservation organizations, or other institutions. These could include, for example, the creation of one or more large public land units such as a state park, national forest, national wildlife refuge, or ecological reserve. An assessment of such possibilities would be interesting, but it would be limited to speculation since there are no active initiatives to implement any of these strategies at this time.

This report is structured in the following manner. It begins by looking at the likely economic future of northern Maine if the region remains specialized on forest products and its lands remain committed to a commercial “working forest.” Then it explores the impact on state and local timber harvests and the forest products industry of incorporating more than 3 million acres of commercial forestland into a National Park. The report then turns to an analysis of the economic vitality of the areas surrounding all of the large National Parks in the lower 48 states. That analysis seeks to understand the economic impact that National Parks have on surrounding communities. The following section then integrates the likely positive and negative impacts of a Maine Woods National Park into the current economic trajectory that northern Maine is on to produce an overview of the net economic impact of the Park. That is followed by an exploration of the impact of replacing state and local taxation of those forestlands with federal payments in lieu of taxes and other supplemental federal payments. Finally, the National Park proposal is discussed in the broader socio-economic context of northern Maine.

#### **About the Author: Dr. Thomas Power**

The author, Dr. Thomas Power, is a Professor of Economics and Chairman of the Economics Department at the University of Montana where he has taught and conducted research for almost 35 years. He specializes in natural resource economics and regional economic development. He is the author of five books, a dozen book chapters, and more than a hundred reports dealing with the economic role of natural resources in determining the economic well-being of households and the economic vitality of communities. He has studied regions and communities across North America with a particular emphasis on the Mountain West and the Pacific Northwest. Both the forest products industry and National Parks

---

are an important part of the economic base of the regions in which he lives, the Pacific Northwest and Western Montana.

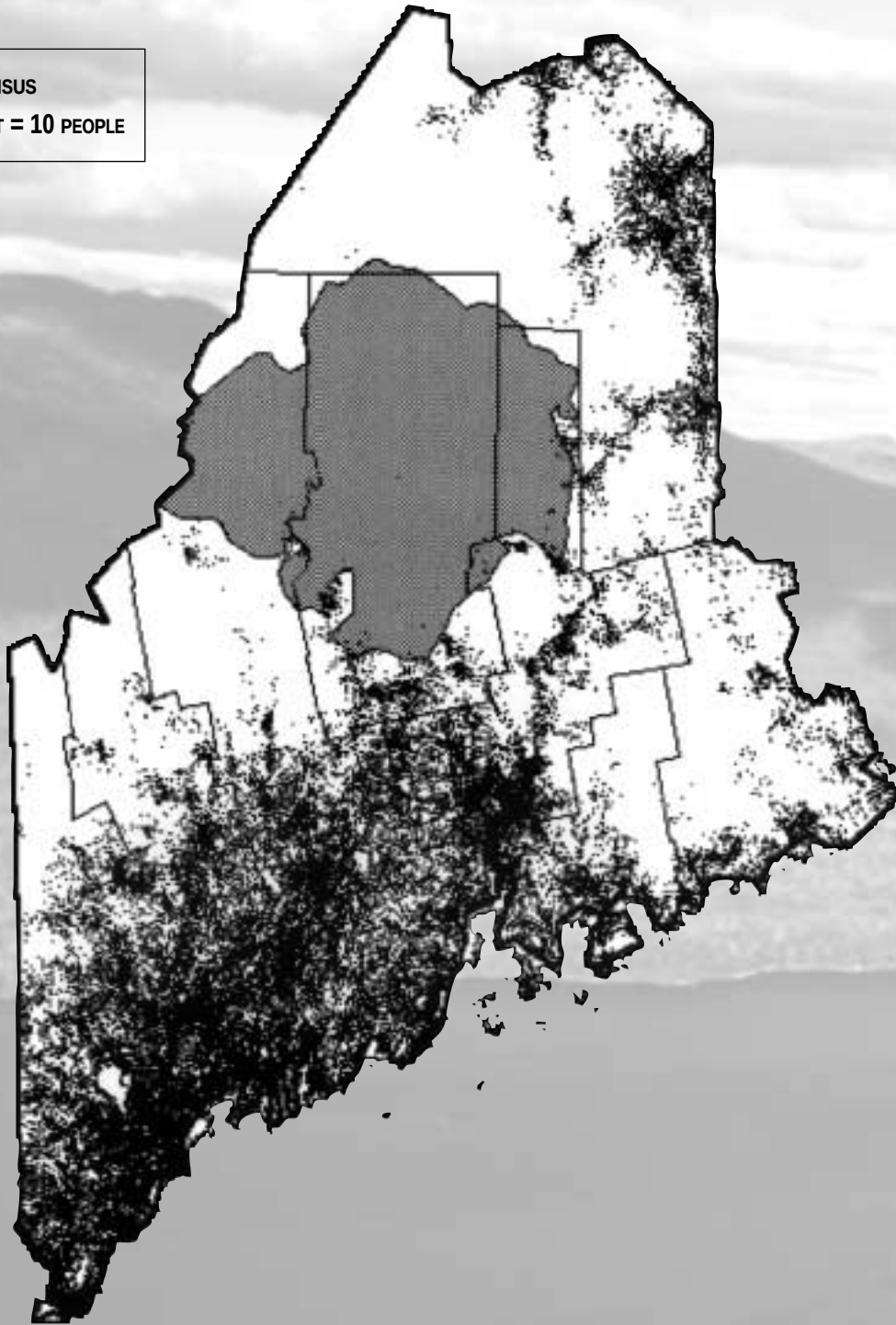
This lifetime of research on issues that are central to the public dialogue over the proposed Maine Woods National Park has led him to several general conclusions that have influenced his approach to this particular study. Those include:

- a. Diversified and balanced economies are better for residents than overly specialized ones that rely on one or a few export-oriented industries.
- b. The more successful a community is at capturing and re-circulating income within the local economy, the less dependent it is on high volumes of exports. More complete local economies reduce the leakage of income out of the community.
- c. Natural resource economies that are not complemented with other economic activities are likely to be unstable and decline over time.
- d. High quality natural and social environments are an economic plus to households because they provide valuable services and to communities because they help hold and attract economic activity. This makes the local natural and social environments important parts of the economic base.
- e. Changes in communications and transportation, changes in the mix of goods our economy produces, rising average incomes, and changing citizen values have caused economic activity to become more “footloose” and has led to a decentralization of economic activity that has benefited small cities and towns.
- f. In general, protected natural landscapes are associated with enhanced local economic vitality, not with depressed local economies. Numerous economic studies have documented this association, including studies covering Maine and New England.

This study was commissioned by the nonprofit organization RESTORE: The North Woods using grants raised specifically for an independent economic analysis of the proposed Maine Woods National Park and Preserve. Although RESTORE raised the funds for this study, editorial control over its content and conclusions remained entirely the responsibility of the author. RESTORE did not direct or supervise the study. The opinions expressed are not necessarily those of RESTORE, the University of Montana, or the University of Montana Economics Department.

**FIGURE 2: MAINE POPULATION DENSITY AND THE PROPOSED  
MAINE WOODS NATIONAL PARK AND PRESERVE**

**1990 CENSUS**  
**EACH DOT = 10 PEOPLE**



CENSUS BLOCK DATA

# **I THE ECONOMIC FUTURE OF NORTHERN MAINE UNDER A “WORKING FOREST” APPROACH**

## **A. Introduction and Summary**

Many Maine citizens and political leaders would prefer that northern Maine's future economy be built around a “working forest.” That is, a forested landscape that continues to be extensively managed primarily for the commercial growing and harvesting of wood fiber. They believe that this vision of the future is more consistent with the region's past economic base and its historical traditions. In order to evaluate the impact of such a future development scenario on local economic well-being and vitality, this chapter looks closely at the past and expected future trends in the forest products industry in northern Maine and the implications of those trends for the communities that depend on the forest products industry.

The findings are not optimistic. Employment in forest products across Maine has fallen significantly and is projected to continue to fall. Real wages in wood products, including logging, have also been in decline. The combination of dwindling jobs and declining wages has hit timber-dependent communities doubly hard. It is important to realize that these declines during past decades have taken place during a period of *rising* timber harvest. But harvest of many commercial tree species in recent years has exceeded net forest growth by a considerable margin.<sup>12</sup> To stay within sustained yield, Maine forest harvests will have to be reduced. This could further accelerate the decline in forest products employment in Maine.<sup>13</sup>

The declining trajectory of forest products employment has already had a substantial negative impact on northern Maine. Aroostook, Piscataquis, and Penobscot Counties all lost population during the 1990s, mostly to out-migration.<sup>14</sup> If the economies of northern Maine remain primarily tied to a “working forest,” the declines are likely to continue. This creates a difficult choice for the region. If, as its conservative impulses suggest, the region seeks to “keep things the way they always have been,” the economic (and accompanying social) decline may worsen.

***Employment in forest products across Maine has fallen significantly and is projected to continue to fall. Real wages in wood products, including logging, have also been in decline. The combination of dwindling jobs and declining wages has hit timber-dependent communities doubly hard.***

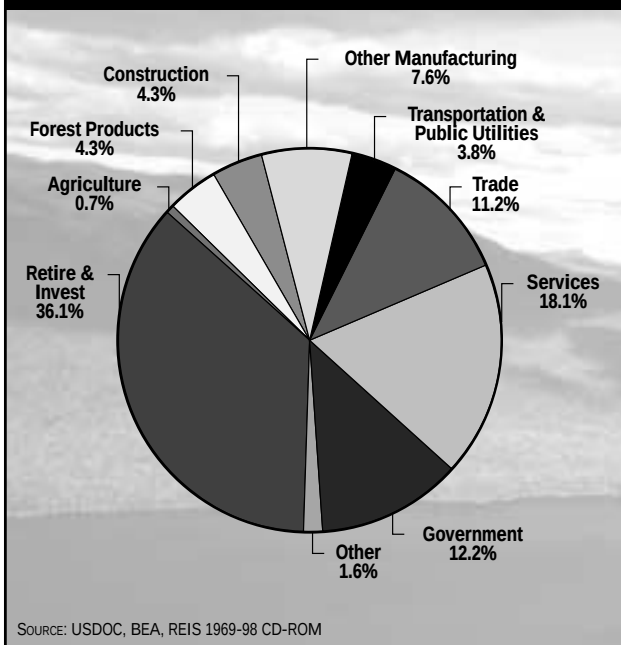


<sup>12</sup>Maine Forest Service, *Timber Supply Outlook for Maine 1995-2045* (Augusta, ME: Maine Department of Conservation, 1998), Chapter 3, Section E, Summary for Major Species Groups.

<sup>13</sup>As will be discussed later in this report, there is not a reliable causal link between the level of timber harvest and the level of employment in the forest products industry. Employment levels are not primarily dictated by the volume of wood fiber harvested in Maine. Technological change and the degree of value added manufacturing, for instance, play a far more significant role over time. Technological change can reduce the employment associated with the harvest and processing of any particular volume of wood fiber. Increased levels of processing beyond simply harvesting the tree increases the level of employment without increasing the level of harvest. Imports and exports of raw material also impact the local level of employment. Finally, fluctuations in the demand for forest products and shifts in supplies of raw materials can impact employment in ways unrelated to local wood fiber supply.

<sup>14</sup>Declines in forest products employment were not the only cause of the population loss or, in Aroostook County's case, the primary cause. The closing of Loring Air Force Base in Aroostook County in 1994 had a major impact on employment and population there.

**FIGURE 3: SOURCES OF INCOME IN MAINE: 1998**



In our dynamic market economy the only way a community can largely remain the same as it was in previous periods is to accept the stagnation and decline that goes with freezing an economy in the past. Mature industries, at best, provide fewer and fewer jobs as technology displaces workers and competition from new sources reduces markets; at worst, they decline and shut down. Local economic vitality is not built around trying to stop that process. Rather, local economic vitality requires that new types of economic activity regularly develop and take the place of jobs lost to the natural aging of older sectors of the economy. That unavoidably involves economic and social change.

A community may want to retain as many of its unique qualities and values as it can in this dynamic process of economic change. In doing that, it needs to focus on those social and cultural qualities and values, not on preserving the particular set of economic activities that supported the population in the past. Most communities do not have the power or the tools to manage an economy that is primarily driven by national and international markets and technological forces. In other words, communities cannot make a dynamic economy static without accepting the consequences of stagnation and decline.

### **B. The Relative Importance of the Forest Products Industry in Maine and the Northern Maine Economies**

The forest products industry has been an important part of the Maine economy since the arrival of the first European settlers. Over time, however, as the Maine economy has developed and diversified, the *relative* importance of forest products has declined. In 1998 about 4 percent of all Maine income and jobs was directly derived from the lumber and wood products and pulp and paper industries combined. About half of the jobs were found in lumber and wood products and the other half in pulp and paper. Lumber and wood products jobs paid slightly less than the average job in Maine while jobs in pulp and paper paid two and a quarter times the average. As a result, wood products was the source of only about 1.5 percent of aggregate Maine personal income while pulp and paper was the source of 2.7 percent of personal income for a total forest products share of 4.3 percent.<sup>15</sup> (See Figure 3.)

The proposed Maine Woods National Park and Preserve would include land in four counties in northern Maine: Piscataquis, Penobscot, Somerset, and Aroostook. Except for Piscataquis County, however, only a modest portion of the land in each of these counties would be included in the proposed Park. At the two extremes, less than one-half of 1 percent of the land area of Aroostook County would be in the Park but 68 percent of Piscataquis would be included. About 21 percent of the land area of Penobscot and 26 percent of Somerset Counties would be included in the Park.

<sup>15</sup>US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, CD-ROM (1969-1998).

The proposed Maine Woods National Park boundary<sup>16</sup> encompasses an area with extremely low population density. (See Figure 2.) In fact, this boundary was drawn to include areas that have very few year-round human inhabitants.<sup>17</sup>

Many people believe that there are few jobs in northern Maine outside of forest products. Actually, in 3 of the 4 northern counties in which the proposed National Park would be located, the forest products industry is no longer dominant. In 1998 only 4 to 5 percent of all jobs in Piscataquis, Penobscot, and Aroostook counties were directly in forest products. In Somerset County the share was about 11 percent.<sup>18</sup> As a source of income, the situation was similar. In Piscataquis County where most of the proposed park would be located, forest products was directly the source of about 6 percent of total personal income in 1998. The forest products industry was the source of approximately 7 percent of income in Penobscot County and 5.5 percent in Aroostook County. Finally, Somerset County derived 17.5 percent of its personal income directly from forest products although most of that forest products activity took place at considerable distance from the proposed Park. In 1997, for instance, only between 100 and 200 of the 2,600 Somerset County forest products jobs were based in the Jackman-Moose River area, the only Somerset County communities with significant forest products production near the proposed Park.<sup>19</sup>

These employment and income statistics refer only to those workers directly employed in forest products. They do not include jobs and payroll associated with businesses that provide inputs to forest products firms nor do they include the jobs and payroll associated with businesses in which forest products workers spend their pay. The indirect and induced employment and payroll are not reported here because they can only be estimated by making a broad range of assumptions, most of which are disputable, while the direct employment and payroll are reported directly to government agencies.

Estimated employment and income “multiplier impacts” are often manipulated for public relations purposes that have little to do with economic analysis. They also tend to project economic impacts,

***[I]n 3 of the 4 northern counties in which the proposed National Park would be located, the forest products industry is no longer dominant. In 1998 only 4 to 5 percent of all jobs in Piscataquis, Penobscot, and Aroostook counties were directly in forest products.***



<sup>16</sup>RESTORE: The North Woods, *America's Next Great National Park: Preserving Our Maine Woods Legacy* (Augusta, ME and Concord, MA, 1999), p. 17.

<sup>17</sup>Some of the population shown just inside the proposed Maine Woods National Park reflects the very approximate hand-drawn character of the Park boundary shown on the map. Many National Parks have private in-holdings in them. Typically, private landowners are who wish to voluntarily sell their land on a willing seller basis do so. Others continue to use their private land within the Park. Over time the number of in-holdings declines as the National Park Service makes competitive offers when the properties are offered for sale.

<sup>18</sup>Maine Department of Labor, *Census of Maine Manufacturers* data for forest products jobs; US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System data for total jobs.

<sup>19</sup>Moose River has a sawmill but its employment and production were not reported in the *Census of Maine Manufacturers* although it is listed in the 2000 *Primary Processor Mill List* issued by the Maine Forest Service. The Jackman mill was listed in the last *Census of Maine Manufacturers*.

***Land in the proposed Maine Woods National Park is associated with about 11 percent of Maine's total timber harvest.***



both positive and negative, of a scale that communities do not actually experience. In that sense, they are often very inaccurate. However, we know that there are economic impacts associated with forest products that extend beyond their direct impacts. In that sense, we know that the direct employment and income data reported above understate the total impact of the forest products industry. The size of the understatement will depend on the particular geographic area selected. For relatively small towns where there is a limited range of businesses, the multiplier impact is likely to be quite modest because most of the income leaks rapidly from those communities. For the state as a whole, where the range of economic activity is much broader, the multiplier impact is likely to be significantly larger.<sup>20</sup> But for the state as a whole and its large urban areas, unemployment rates are quite low; new jobs are primarily filled by new in-migrants and those who lose jobs are quickly re-employed. In that setting it is not clear what the “multiplier” impact refers to. In any case, given the rural character of the proposed Park area, multiplier impacts associated with any change in economic activity are likely to be quite modest. We discuss the estimation of local economic impacts in more detail below.

There are no forest products processing facilities located within the proposed Maine Woods National Park. In fact, most forest products manufacturing activity takes place at a considerable distance from the proposed Park. The counties involved are very large. Measured in a straight line, Skowhegan in Somerset County is at least 40 miles from the border of the Park. In Penobscot County, Bangor is 40 miles from the boundary. In Aroostook County, Fort Kent is 60 miles away. Dover-Foxcroft in Piscataquis County is less than 10 miles from the southern border but 100 miles from the northern border of the Park. There are, however, mills in the communities in Maine and Canada on the periphery of the Park. Wood products mills in the Dover-Foxcroft and Guilford area, paper and lumber operations mills in the Millinocket-Medway area, and sawmills in the Ashland area are the largest of these facilities.<sup>21</sup> The Dover-Foxcroft and Guilford area manufacturing facilities, employing about 1,400 workers in 1997, and the Millinocket-Medway area mills represent the greatest concentrations of forest products jobs in the immediate vicinity of the Park.<sup>22</sup>

Land in the proposed Maine Woods National Park is associated with about 11 percent of Maine's total timber harvest.<sup>23</sup> Looking at the entire counties, and not just at the part of the counties that would be included in the Park, exaggerates the Park area as a source

<sup>20</sup>An informal rule of thumb would be that the multiplier for a small town or rural area would be between 1.2 and 1.5; for a larger county that includes a large city a multiplier of about 2 might be appropriate; for the state as a whole a multiplier should be no larger than 3 to 3.5.

<sup>21</sup>Maine Forest Service, *2000 Primary Processor Mill List* (Augusta, ME: Maine Department of Conservation); Maine Department of Labor, *1997 Census of Maine Manufacturers* (Augusta, ME: Bureau of Labor Standards).

<sup>22</sup>Maine Department of Labor, *1997 Census of Maine Manufacturers*.

of wood fiber, but it does provide an indication of the wood fiber flow from northern Maine. Between 1990 and 1998, an average of 34 percent of Maine's sawlogs was harvested in the 4 counties as well as 51 percent of the state's pulpwood. About 42 percent of the total cubic feet of the sawlog and pulpwood harvest combined came from these 4 counties, but only about a quarter of this was associated with land in the proposed Park. (See Figure 4.) During the same period Piscataquis County, where the bulk of the Park would be located, was the source of 6 percent of Maine's sawlogs and 13 percent of pulpwood logs for a total of 9 percent of the total cubic feet of wood fiber harvested in the state.<sup>24</sup>

Logging employment is reported by sub-county Labor Market Areas (LMA), but in northern Maine these LMAs are very large, each encompassing a significant percentage of the total county. In the Greenville LMA, which covers the northwestern third of Piscataquis County, about 10 percent of total employment is in logging. In the Dover-Foxcroft LMA, which contains the other two-thirds of Piscataquis County, less than 1 percent of employment is in logging. In the Skowhegan LMA, which contains most of Somerset County, about 4 percent of jobs are in logging. In the Millinocket LMA about 4.4 percent of jobs are in logging.<sup>25</sup>

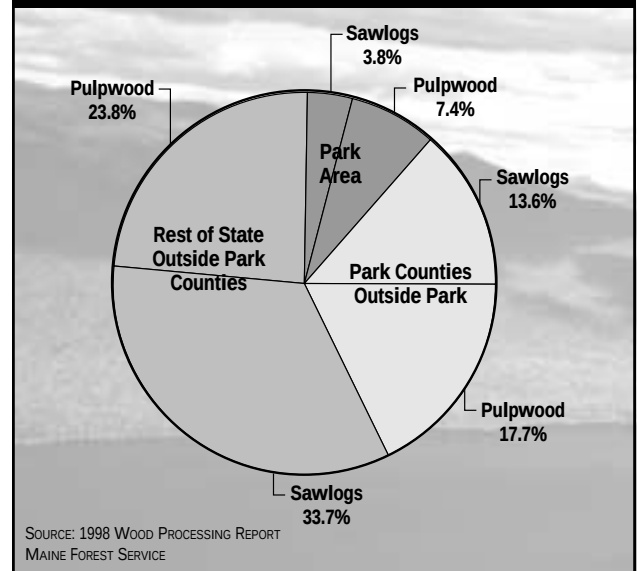
Of course, as mentioned above, not all of the woodlands in these counties or LMAs would be included in the proposed Park. More than 99 percent of Aroostook, three-quarters of Somerset, and 80 percent of Penobscot Counties lie outside the proposed Park. Even Piscataquis has substantial forested acreage, about a quarter of its total area, outside the proposed National Park and Baxter State Park.

## C. Trends in the Forest Products Industry

### i. Employment Associated with Maine Timber Harvests

The forest products industry in Maine has always been cyclical. Total earnings and employment fluctuate with national and international demand, Maine's competitive position, and the quality and quantity of the wood fiber supply available. That makes it somewhat difficult to discuss trends since, depending upon the starting and ending points chosen, one could see quite different trends. For instance, 1979, a peak year in lumber and wood products, was followed by a depression from which the industry recovered in the late

**FIGURE 4: TIMBER HARVEST POTENTIAL OF PROPOSED MAINE WOODS NATIONAL PARK COMPARED TO OTHER AREAS OF MAINE, 1990-1998, AVERAGE ANNUAL HARVEST**

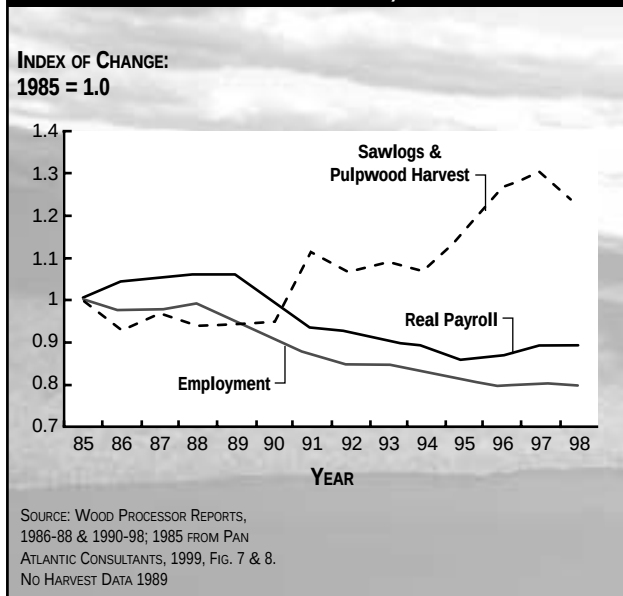


<sup>23</sup>This estimate is based on the assumption that timber harvests are distributed in proportion to the forested acreage in each county. This is clearly a rough approximation, but since we are not trying to project timber harvests at any location in any particular year but are looking at timber harvests over a 10 to 20 year period and over four large counties, this provides a reasonable first approximation.

<sup>24</sup>Maine Forest Service, *Woodprocessors Report* (Augusta, ME: Maine Department of Conservation, January 1999).

<sup>25</sup>Pan Atlantic Consultants and The Irland Group, *Maine Logging Industry and the Bonded Labor Program: An Economic Analysis* (Augusta, ME: Maine Department of Labor, November 1999), Fig. 12 and 17, pp. 51 and 55. The reported "covered employment" was adjusted upward by the same percentage as was necessary to get covered employment to match the study's estimate of the total logging employment.

**FIGURE 5: CHANGE IN FOREST HARVEST, PAYROLL, AND EMPLOYMENT IN MAINE, 1985 - 1998**



1980s only to slide into another deep decline that lasted until 1995.<sup>26</sup> Recovery continued through the late 1990s only to be interrupted by weak markets in the year 2000. Before the decline in 2000, the wood products sector in Maine had not recovered to its previous peaks; it was still 26 percent below the 1979 and 16 percent below the 1987 peaks in terms of real (i.e. constant dollar) payrolls.

The pulp and paper industry in Maine has been somewhat less cyclical. Total pulp and paper payrolls increased during the 1970s and 1980s, rising by almost a third in constant dollars. Between 1989 and 1998, however, pulp and paper payrolls declined by 17 percent in real terms. Payrolls for lumber and wood products and paper and pulp combined, declined about 16 percent for the same period.

As with payrolls, employment in the forest products sectors also declined between the late 1980s and the late 1990s. Pulp and paper had the biggest decline, 3,300 jobs or 19 percent. Lumber and wood products lost 3,200 jobs or about 23 percent. The total loss in the forest products sectors in Maine was almost 6,000 jobs, about 18 percent of the forest products workforce in 1987. During the same time period, the Maine economy added about 100,000 jobs outside of forest products.

While employment in Maine in lumber and wood products declined by 20 percent between 1985 and 1998, the harvest of sawlogs expanded by 63 percent.<sup>27</sup> (See Figure 5.) Clearly, increased harvests do not assure increased wood products employment. The relationship between harvest and employment is much more complicated than simple proportionality. If we look at the ratio of wood products employment and harvest, the combination of these two divergent changes suggests a 52 percent decline in the employment supported by each million cubic feet of sawlogs harvested in Maine.<sup>28</sup>

Much of this reduced labor intensity is associated with ongoing technological change in the harvest and processing of wood fiber. The forest products industry, like other natural resource industries such as agriculture and mining, is a mature industry in which technological change systematically reduces employment per unit output. The pulp and paper industry provides dramatic evidence of this. Between 1975 and 1996 labor productivity in the paper industry increased by

<sup>26</sup>All the data on employment and payroll come from the US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, CD-ROM (1969-1998).

<sup>27</sup>The time period reported here is slightly different from that reported in the previous paragraph. It begins in 1985 rather than 1988 or 1989 because that is the beginning of the timber harvest data being used.

<sup>28</sup>Because logging, whether it is harvesting a sawlog or pulpwood is categorized as a lumber and wood products job, the employment associated with sawlogs is exaggerated and that associated with pulp and paper understated. Since logging employment declined much more rapidly than employment in either lumber mills or pulp/paper mills, the decline in employment associated with sawlogs is also exaggerated and the decline associated with pulpwood understated. See Pan Atlantic Consultants and The Irland Group, 1999, Table 42.

3.1 percent per year.<sup>29</sup> In Maine specifically between 1976 and 1994 inputs per unit output in the pulp and paper industry declined at a rate of 5.3 percent per year.<sup>30</sup>

If employment were rigidly linked to the level of harvest<sup>31</sup> and the harvest had not increased between 1985 and 1998, the decline in employment in Maine wood products activities would have been much greater, about 7,200 jobs or over twice as much as the actual decline of 3,000 between 1985 and 1998. For all of forest products, if harvest had not increased, the decline in Maine's forest products industry would have been about 50 percent higher, representing about 10,000 lost jobs, instead of the 6,600 jobs that were actually lost between 1985 and 1998. This provides an important warning. Employment in forest products in Maine in recent years has been supported by expanded harvests. Because Maine timber harvests cannot continue expanding in the future or may actually have to be reduced, there may be accelerated job losses in forest products unless there are offsetting changes such as development of new sources of fiber supply, expansion of value-added manufacturing, or new investments in forest productivity.

The amount of labor per unit of sawlogs and pulpwood harvested has been declining for decades. Between 1952 and 1979 employment per million cords of sawlogs harvested fell 60 percent from 16,400 to 6,650. Jobs per million cords of pulpwood harvested fell 30 percent from 7,900 to 5,700.<sup>32</sup> If harvests had been constrained and had not risen, total forest products employment in Maine would have declined even more sharply throughout the second half of the 20th century.

In Piscataquis County, where the proposed Maine Wood National Park would be centered, the forest products sector has been in steady decline. Adjusted for inflation, forest products payroll in the county has tumbled 63 percent since 1979. The Census of Maine Manufacturers indicates that between 1988 and 1997 wood products employment in Piscataquis County dropped from about 1,100 to 400, a 62 percent decline.<sup>33</sup> In Greenville, manufacturing plummeted from 328 to 48, an 85 percent decline during the same period. In the Dover-Foxcroft Labor Market Area, manufacturing jobs



***Because Maine timber harvests cannot continue expanding in the future or may actually have to be reduced, there may be accelerated job losses in forest products unless there are offsetting changes.***

<sup>29</sup>Lloyd C. Irland, *Northeastern Paper Mill Towns Economic Trends and Economic Development Response*, report prepared for the Eastern Maine Development Council (Bangor, ME, September 28, 2000), p. 1.

<sup>30</sup>John B. Lindahl and Andrew J. Plantinga, *Input Use in Maine's Wood Products Industry* (Orono, ME: Maine Agricultural and Forest Experiment Station, University of Maine, Miscellaneous Report 407, 1998), p. 8, Table 4.

<sup>31</sup>As will be discussed in detail later, the evidence clearly indicates that employment is not rigidly linked to harvest. Over time harvest and employment move in very different ways.

<sup>32</sup>Lloyd C. Irland, "Future Employment in the Maine Woods," in *A Forest Based Economy, 1984 Blaine House Conference on Forestry* (Augusta, ME: Maine Department of Conservation, 1986), Table 12, converted from board feet to cords (one thousand board feet = two cords).

<sup>33</sup>1997 is used as the last year because that was the last year for which the *Census of Maine Manufacturers* was published.

**FIGURE 6: REAL INCOME IN FOREST PRODUCTS COMPARED TO THE REST OF THE ECONOMY: PISCATAQUIS COUNTY, MAINE, 1979-1998**

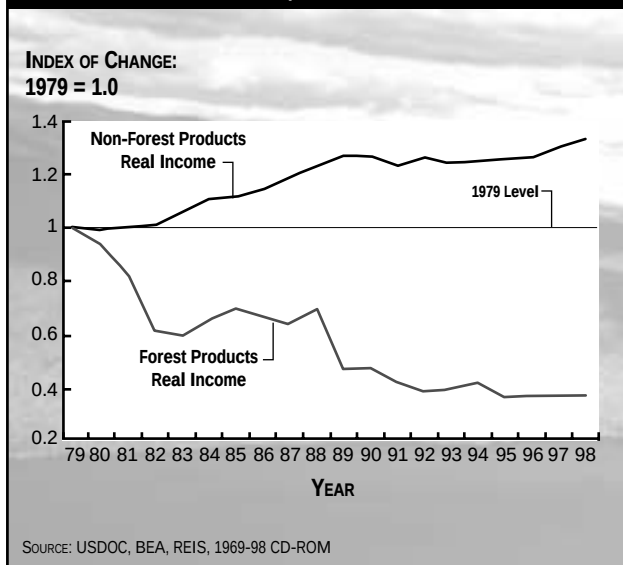
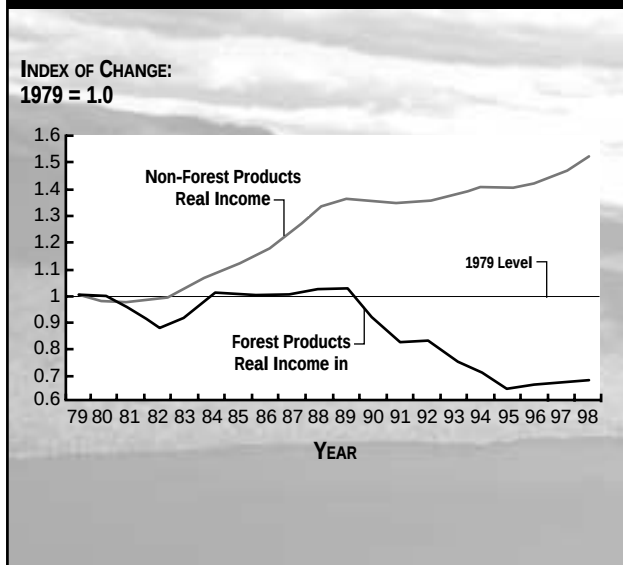


**FIGURE 7: REAL INCOME IN FOREST PRODUCTS COMPARED TO THE REST OF THE ECONOMY: PENOBSCOT COUNTY, MAINE, 1979-1998**



decreased by 760 in the decade between 1988 and 1997. As a source of income, the forest products industry in Piscataquis County fell from about 20 percent of all income in 1979 to only about 5 percent in 1998. The dominance of the forest products sector in the local economy appears to have ended in Piscataquis County.

In Somerset and Penobscot Counties, the inflation-adjusted payroll in lumber and wood products has fluctuated widely. In Somerset County there was an overall upward trend (26 percent increase compared to 1979), but in Penobscot there was a downward trend (a 40 percent decline relative to 1979 but a 56 percent decline relative to 1989). Somerset County has also seen a major increase in pulp and paper industry payroll (a 150 percent increase), while Penobscot County has seen paper payrolls decline about 28 percent in real terms.

In Penobscot County the forest products industry's relative importance as a source of income was cut in half between 1979 and 1998, falling from 14 to 7 percent. As in Piscataquis County, in Penobscot County the dominance of forest products has faded considerably. On the other hand, in Somerset County, the forest products industry was the source of 19 percent of income in 1986 and it has remained the dominant industry, though it slipped to 17.5 percent by 1998. For small towns adjacent to the proposed Park, however, forest products trends have been no better in Somerset County than in neighboring Piscataquis. Jackman-Moose River, for instance, saw manufacturing employment decline by 56 percent between 1987 and 1998.

Fortunately, the decline in forest products employment and income did not cripple the rest of the economy in Piscataquis and Penobscot Counties. Despite the 60 percent decline in real forest products payroll in Piscataquis, real income from the rest of the economy expanded by a third between 1979 and 1998. (See the figure above.) In Penobscot County, the 31 percent decline in real forest products payroll was accompanied by a 50 percent growth in real income outside of forest products. (See Figures 6 and 7.)

That is not to say that the decline in forest products employment and pay did not have a negative impact on the overall economy. The forest products decline no doubt hampered the overall expansion of the economy since the forestry sector is a part of the total economy. In Piscataquis County aggregate real income rose only about 15 percent between 1979 and 1998. In Piscataquis County aggregate real income rose only about 15 percent between 1979 and 1998. In Penobscot County growth in aggregate real income was 40 percent during that period. Given the 31 percent decline in forest products income in Penobscot County, this represented impressive economic vitality. In Somerset County, where forest products payroll expanded 87 percent, growth in aggregate real income was only modestly higher than in Penobscot County where the forest products payroll declined by almost a third.<sup>34</sup>

<sup>34</sup>Aggregate real income expanded by 48 percent in Somerset and 40 percent in Penobscot.

Curiously, the ongoing expansion in forest products in Somerset County has not boosted average incomes compared to neighboring Piscataquis County, whose forest industries contracted. Despite a near doubling of forest industry payrolls in Somerset County since 1982 and a 40 percent contraction of forest industry payrolls in Piscataquis, average real incomes were nearly identical in Somerset and Piscataquis in both 1982 and 1998 (as well as 1972). Clearly, forest products expansion does not assure higher average incomes, and forest products contractions do not condemn an area to declining average incomes.

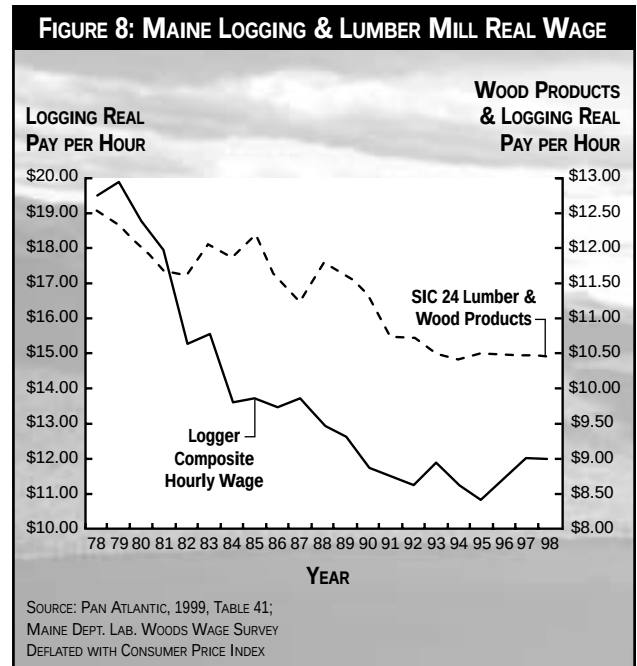
Even without taking into account the limitations that the conditions of Maine's northern forests place on future timber harvests, employment in forest products in Maine is almost certain to decline because of changes in technology and forest products markets. The Maine Department of Labor projects that between 1998 and 2008 employment will decline in both pulp and paper products (-15 percent) and lumber and wood products (-10 percent). Both pulp/paper and lumber/wood are projected to be in the top four declining industries in Maine, losing 3,000 jobs between them over the next decade.<sup>35</sup>

## ii. Average Real Pay in the Forest Products Industry

As employment in Maine's wood products sectors has been declining, so has average pay. Between 1978 and 1998, estimated real hourly wages in logging declined by almost 40 percent. (See Figure 8.) For the larger wood products group, including mill workers as well as loggers, real hourly wages declined by 17 percent.<sup>36</sup> When pay over the entire year is taken into account so that the number of hours worked throughout the year is accounted for along with the pay per hour, the decline for loggers was only half as great, about 20 percent. This suggests that loggers were able to put in more weeks and hours of work in the 1990s than in the 1970s.

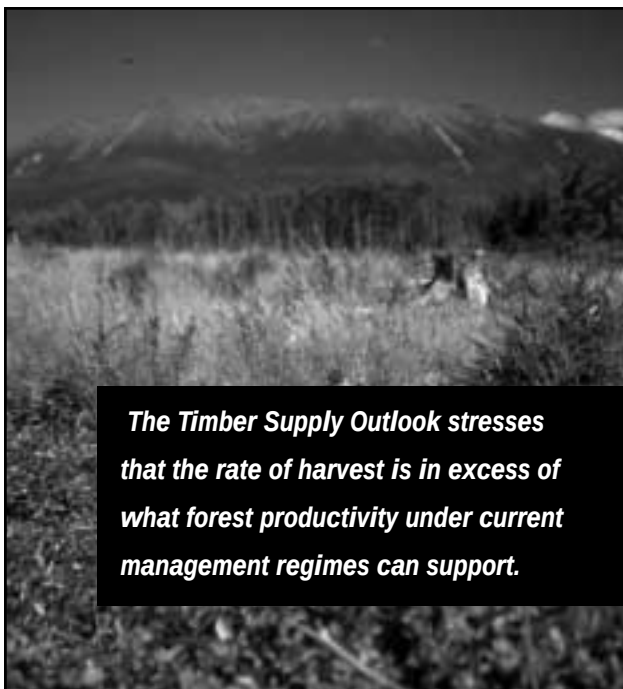
The pulp and paper industry presents quite a different picture. Average annual pay per worker appears to have remained constant in real terms between 1989 and 1998 despite a 20 percent decline in employment statewide.

The pulp and paper industry contrasts with the lumber and wood products industry in another way. In lumber and wood products, including both logging and mill jobs, average annual pay is below the average pay for all jobs in the state and well below the average pay in manufacturing. Average manufacturing wages in Maine in 1998 were \$13.49 per hour, but the hourly pay in lumber and wood products was only \$10.46. In logging, the hourly wage was about



<sup>35</sup> Maine Department of Labor, *Labor Market Digest* (July 2000), p. 1.

<sup>36</sup> These wage data include only those workers who are covered by the unemployment insurance program. Self-employed individuals (including some logging contractors) are not included. Maine Department of Labor, *Woods Wage Survey* and Division of Labor Market Information Services, *Covered Private Employment and Wages in Maine for Selected Industries, 1973-1998*. Also see Pan Atlantic Consultants and The Irland Group, 1999, Figure 36 and Appendix H.



*The Timber Supply Outlook stresses that the rate of harvest is in excess of what forest productivity under current management regimes can support.*

\$12.00 per hour. On the other hand, at \$20.23 per hour the average wage in pulp and paper was well above the manufacturing average for Maine.<sup>37</sup> In terms of average annual pay per employee, pay was about \$25,500 across all jobs but was \$24,609 in logging in 1998.<sup>38</sup> In lumber and wood products mills, the average annual pay at \$25,900 was almost exactly at the economy-wide average.<sup>39</sup> In Maine, jobs in logging and wood products mills are no longer highly paid in the sense of paying above average wages. On the other hand, the jobs in pulp and paper are very high paying, averaging \$51,700 per year.

#### **D. Timber Supply in Maine**

One key question in exploring the likely future of Maine's forest products sectors and the communities that depend upon them is the capacity of Maine's forests to support existing or expanded levels of harvest. Given that it was expanded harvests that have helped keep forest products employment in Maine from declining even further than it has recently, the future employment potential in the forest industry is clearly tied to the harvest that the forest can sustain.

This is a relatively complex question because what is considered merchantable fiber depends on the prices markets will support, the technology deployed in Maine's mills, and the mix of outputs the mills are producing. In the past, as preferred species were depleted, harvest did not simply fall off. Instead, harvest shifted to other tree species to be used to produce somewhat different products. The historical shifts from producing naval timbers to dimensioned lumber to pulp and paper provide examples. The more recent modification of lumber mills to make use of very small trees that previously had been used only for pulp and the shift by pulp mills to the increased use of lumber mill residue and recycled fiber is another. Maine's mills are capable of producing a variety of commercially valuable wood fiber products from the variety of fiber sources Maine's forests and imported sources provide. Markets and technology determine what that mix of products is and the effective demands on the forests.

A recent joint study by the Maine and US Forest Services analyzed the "Timber Supply Outlook for Maine: 1995-2045."<sup>40</sup> It was based on the US Forest Service's inventory of the Maine timber supply carried out in 1995.<sup>41</sup> The Timber Supply Outlook stresses that the rate of harvest is in excess of what forest productivity under current man-

<sup>37</sup> Maine Department of Labor, *Labor Market Digest* (June, 2000), p. 7.

<sup>38</sup> These wage data only include workers who are covered by the unemployment insurance program. Maine Department of Labor, *Covered Employment and Wages by Major Industry Division, 1998* (Augusta, ME: Division of Labor Market Information Services), Table 9.

<sup>39</sup> Maine Department of Labor, *Covered Private Employment and Wages in Maine for Selected Industries, 1973-1998* (Augusta, ME: Division of Labor Market Information Services).

<sup>40</sup> Maine Forest Service, *Timber Supply Outlook for Maine 1995-2045* (Augusta, ME: Maine Department of Conservation, 1998).

agement regimes can support.<sup>42</sup> For large landowners (100,000 acres or more) the current rate of harvest is 30 percent above the net growth of the forest. This deficit is projected to continue over the next quarter century under current management practices.<sup>43</sup> Even with substantial additional investments aimed at boosting forest productivity the gap between current harvest and forest productivity remains almost as large. If the likelihood of a renewed spruce budworm outbreak in the future is taken into account, the gap between harvest and forest productivity is even larger. The Timber Supply Outlook concluded that across all ownerships the level of harvest in Maine in the mid-1990s exceeded forest growth by about 14 percent.

In the area of the proposed Maine Woods National Park and Preserve, current levels of harvest may be even further beyond levels that can be sustained by forest growth. In Piscataquis County, for instance, where the proposed Park would be centered, annual removals of both sawlogs and growing-stock are estimated at close to three times the average annual net growth. For the four counties in which the Park would be located, removals were 50 percent higher than growth.<sup>44</sup> The forest inventory data on which these estimates are based were for the years 1982 and 1995. Included in that period was extensive salvage logging to remove growing stock damaged by insect infestations. That explains some of the removal in excess of net growth. Insect infestations, however, are a natural part of the forest cycle, and should not simply be looked at as unique or unusual occurrences.

The Timber Supply Outlook study found that, statewide, net annual growth in Maine's forests had declined by 40 percent since the forest inventory in 1972. The age-class of the standing inventory is imbalanced and has been so for a long time; there are too many young trees and not enough mature trees. Since 1980 approximately 42 percent of Maine's forestlands have been commercially logged. This pace of harvest clearly is having an important influence on future wood fiber supply.

All of this timber inventory modeling by the Maine and US Forest Services assume that the entire forested land base will continue to be

***In Piscataquis County...where the proposed Park would be centered, annual removals of both sawlogs and growing-stock are estimated at close to three times the average annual net growth.***



<sup>41</sup>The Maine Forest Service and the US Forest Service have entered into a continuous inventory of Maine's forests with 20 percent of the forest being analyzed each year so that over a five-year period all of the forestlands will have been analyzed. The results of the first year of this five-year inventory were released in October 2000. These preliminary results indicate that both the total inventory and forest productivity have increased relative to what the 1995 inventory indicated. These preliminary results, if confirmed in the following years' inventories, could lead to less pessimistic projections about sustainable future harvests. Maine Forest Service, *Report of the 1999 Annual Inventory of Maine's Forests* (Augusta, ME: Department of Conservation, October 24, 2000, <http://www.state.me.us/doc/mfs/pubs.htm>).

<sup>42</sup>Maine Forest Service, 1998.

<sup>43</sup>*Ibid.*, Table 8.

<sup>44</sup>Douglas M. Griffith and Carol L. Alerich, *Forest Statistics for Maine, 1995* (USDA Forest Service, Northeastern Forest Experiment Station, Resource Bulletin NE-135, 1996), Tables 116 and 117.



***[I]t is highly likely that future timber harvests in the area of the proposed Maine Woods National Park will be substantially below recent harvests, by as much as 30 percent, even if no Park is created.***

available for commercial timber harvest. That is unlikely to be the case. Some of these lands are inaccessible or, even, inoperable from the point of view of commercial harvest because of steep slopes, water, or wetland barriers. In addition, the owners of some of Maine's forested lands have explicitly indicated that they will never allow commercial timber harvests on their lands because they own these lands for non-commercial reasons. As large blocks of timber land are subdivided into smaller parcels, the new owners tend to focus less on timber management and harvest. This is estimated to have removed the equivalent of more than a 100,000 acres from timber management in the LURC jurisdiction.<sup>45</sup> Similar non-commercial motivations are leading individuals, non-profits, and public entities to purchase forestlands in order to protect parts of Maine's landscape from commercial logging and other extractive uses. As large blocks of Maine's forestlands are transferred from timber companies to land investment companies, the focus on managing those lands exclusively for timber production may also shift. Finally, the ongoing growth of the Maine economy is likely to lead to more and more land being committed to residential, commercial, and urban uses that exclude commercial timber harvest. Including these likely withdrawals of forested lands from the available land base for commercial timber harvest would reduce even further the forestlands available for harvest and increase the deficit relative to current levels of timber harvest.<sup>46</sup>

When all of these considerations are taken into account, it is highly likely that future timber harvests in the area of the proposed Maine Woods National Park area will be substantially below recent harvests, by as much as 30 percent, even if no Park is created. This means that the sustained yield timber harvest in the area that would be affected by the proposed National Park will have to be substantially below the level of cut of the recent past. Such expected reductions in harvest no matter what decision is made about the proposed National Park reduce the potential impact of the Park on timber supply. In our modeling of the employment impacts of the proposed National Park, we make the conservative assumption that future timber harvests will be 20 percent below those of the recent past.

None of this discussion is meant to imply that a "shortage" of trees is about to force an immediate reduction in timber harvests. The Timber Supply Outlook found that the current harvest could be maintained for the full 50-year study period by depleting the existing standing inventory in Maine. Although this could be done, it would involve increasing deviations from a sustained yield harvest that would ultimately require a reduced harvest level. Landowners could

<sup>45</sup>Land and Water Associates, *Impacts of Changes in Landownership Patterns and Development in the LURC Jurisdiction on Timber Production and the State's Forest Manufacturing Economy*, prepared for the Maine Land Use Regulation Commission (Augusta, ME, January 19, 1995).

<sup>46</sup>Todd Caldwell, *The Effects of Land Available For Harvest Assumptions on Maine Timber Supply Projections* (<http://www.megalink.net/~lec/Papers.html>, 1999).

also make investments to boost the future productivity of the forests. Measures that could potentially close the gap include increasing forest growth through improved partial harvesting techniques and increasing the number of acres under high-yield silvicultural practices. So far, few forest landowners have been willing to make such investments given the current low productivity and profitability of Maine's forests.

The conclusions of this most recent review of the productive capacity of Maine's forests indicate that expanded harvests in Maine are very unlikely. They could only be carried out at the cost of creating an even bigger "hole" in the future Maine timber supply and forcing an even larger reduction in harvest in the future. If additional silvicultural investments boosting forest productivity are not forthcoming, harvests will have to decline to reach sustained yield levels.

This is not a forecast. If market demand for Maine's wood fiber increases, private landowners could accelerate liquidation of the standing inventory and that could boost timber harvest for many years to come. A day of reckoning in which harvests would then have to drastically decline, however, would finally come. On the other hand, the demand for Maine's wood fiber may weaken and harvest may decline to below the sustained yield level because of weak markets. If Maine's forest products mills continue to age and remain relatively high cost operations, many of them may close, reducing the local demand for trees. What we can say with some confidence is that the tripling of Maine harvests between 1952 and 1990 is not likely to be repeated. The most optimistic scenario for the next 50 years would be simply maintaining the current level of harvest; more likely is a significant decline in harvest. That means there are likely to be ongoing declines in forest products employment because expanded harvests will no longer compensate for the steadily declining labor intensity of the forest products industry.<sup>47</sup>

### **E. The Competitive Position of Maine's Paper Industry**

In the mid-1990s Maine's Legislature was concerned enough about the future viability of Maine's pulp and paper industry to establish a "Commission to Study the Future of Maine's Paper Industry." The Commission's Report, issued in 1995, concluded that Maine's paper industry was at a disadvantage in competition with facilities found elsewhere in the nation and around the world because of the lack of investment in the technology necessary to increase production capacity and improve quality.<sup>48</sup> It found that, in general, Maine's

***[T]here are likely to be ongoing declines in forest products employment because expanded harvests will no longer compensate for the steadily declining labor intensity of the forest products industry.***



<sup>47</sup>For an interesting exploration of how various private and public forest management decisions and market phenomenon may interact in the future to produce either instability or sustainable results in the forest products industry of the Northern Forests, see Don Seville, Andrew Jones, and Donella Meadows, *The Forest Systems Modeling Project: Exploring the Future of The Northern Forest* (Hartland Four Corners, VT: The Sustainability Project and the Northern Forest Center, Interim Report—July, 2000, <http://www.sustainer.org/systems/forest/>).

<sup>48</sup>*Report of the Commission to Study the Future of Maine's Paper Industry* (Augusta, ME: Maine Office of Policy and Legal Analysis, 1995).



***Deterioration in the competitive condition of Maine's pulp and paper mills would be of special concern given that this industry has been the most stable and highest paying segment of Maine's forest products industry.***

mills were below average in size and older in age than their competition. The study concluded that if Maine's papermakers did not invest in upgraded technology, they would not be able to remain globally competitive.<sup>49</sup>

The Wall Street financial analysts that addressed the Commission were considerably more negative about the state of Maine's pulp and paper industry than the report the Commission submitted to the Legislature was. An analyst from Goldman Sachs<sup>50</sup> pointed out that Maine had higher wood fiber costs than southeastern United States because trees in Maine take much longer to mature, requiring a longer and more costly period for management and a longer period before costs could be recovered. It takes 50-70 years for many commercial tree species to fully mature in Maine compared to 20-30 years in the southeastern United States. In addition, he asserted that the volume of fiber available was limited, requiring the importation of a significant part of the raw materials needed to serve the existing Maine capacity. Maine also had higher labor, energy, and transportation costs compared to the South. Finally, because of the age of the mills in Maine, they faced higher maintenance costs.

The Smith Barney representative<sup>51</sup> emphasized the same set of higher costs in Maine. He also pointed out that the small size of Maine's mills prohibited the installation of some of the most modern equipment. In addition, he reported that it was unlikely that investments would be made in all of Maine's mills to allow the use of recycled fiber because Maine's small population produced so little recycled fiber.<sup>52</sup>

An economist with the United States Department of Agriculture in Washington summarized the problems faced by Maine's paper industry by asking and answering the question: "How can the [paper] industry in Maine enhance its competitiveness?" The answer offered: "...the [paper] industry is going to have to make major structural changes including shutting outmoded plants, reducing employment and thereby increasing productivity, reducing wage rates, softening environmental impacts with new or better techniques, cutting input (pulp, energy, transportation, recyclable materials) costs, and reducing regulatory costs such as worker's compensation and many others."<sup>53</sup> Most of these steps would reduce the employment and income generated by Maine's pulp and paper industry.

<sup>49</sup>Ibid., p. ii.

<sup>50</sup>Letter from John Chrysikopoulos, VP, Investment Research Department, December 3, 1994, appended to the *Report of the Commission to Study the Future of Maine's Paper Industry*.

<sup>51</sup>George Adler, Minutes of the Commission's October 31, 1994 meeting, appended to the *Report of the Commission to Study the Future of Maine's Paper Industry*.

<sup>52</sup>Recycled fiber is used in some of Maine's mills such as the Great Northern Paper mill in East Millinocket.

<sup>53</sup>Letter from Clark R. Burbee, August 1, 1994, appended to the *Report of the Commission to Study the Future of Maine's Paper Industry*.

Deterioration in the competitive condition of Maine's pulp and paper mills would be of special concern given that this industry has been the most stable and highest paying segment of Maine's forest products industry. If it deteriorates, the payoff to Maine from its forest products industry will decline significantly. There is evidence that Maine's pulp and paper industry was successfully deploying technology to cut costs and boost productivity through the mid-1990s. Between 1976 and 1994 productivity improved at a rate of about 5 percent per year. Although this involved reductions in total employment in Maine's pulp and paper industry, the pay (and assumedly workers' skill level) rose so that total payroll did not decline.<sup>54</sup> The issue raised by the legislative study was whether this past successful adaptation would continue. As of the year 2001, this question has not been definitively answered. While some pulp mills and paper machines have shut down, there have also been some substantial investments made in upgrading others.

Maine is not alone in facing declining employment in forest products and economic decline in small towns dependent upon forest products mills. This is a problem that plagues dozens of towns across the northeastern United States and eastern Canada.<sup>55</sup> The geographic breadth of the problem underlines the fact that it represents a long-term trend and is not the result of particular policies or problems in particular communities or states.

#### **F. The Future of Forest Products-Dependent Communities**

Forest products employment in the small towns adjacent to the proposed Maine Woods National Park and Preserve declined dramatically over the 1987-1998 decade. Population in Aroostook, Penobscot, and Piscataquis Counties also declined during the 1990s. Aroostook County lost about 15 percent of its population to net out-migration. Penobscot lost 3.5 percent to net out-migration.<sup>56</sup> Piscataquis County saw its population decline 3.1 percent, but much of that was due to an excess of deaths over births, a sign of an aging population, rather than primarily out-migration. Somerset County's population grew about 6 percent, but most of that growth was in the southern part of the county, a considerable distance from the proposed Park. It is clear that northern Maine is not on a healthy economic and demographic trajectory.

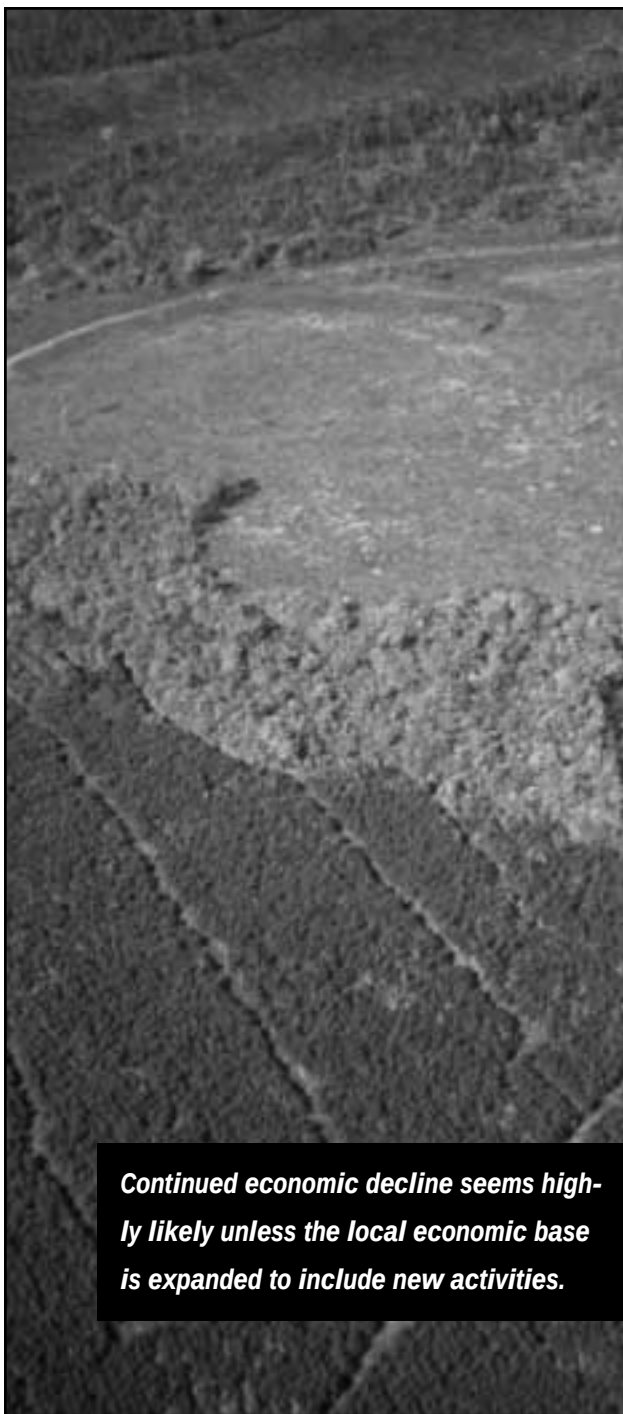
<sup>54</sup>John B. Lindahl and Andrew J. Plantinga, *Input Use in Maine's Wood Products Industry* (Orono, ME: Maine Agricultural and Forest Experiment Station, University of Maine, Miscellaneous Report 407, 1998), p. 8, Table 4.

<sup>55</sup>Lloyd C. Irland, *Northeastern Paper Mill Towns: Economic Trends and Economic Development Responses*, September 28, 2000 (Orono, ME: Maine Agricultural and Forest Experiment Station, forthcoming as a Miscellaneous Report).

<sup>56</sup>Aroostook County had military base closings in the 1990s that contributed significantly to declines in both employment and population. During the 1990s it was not primarily declines in employment in forest products sectors that explains the population loss. Between 1990 and 1996 Aroostook County wage and salary employment declined by 6,400. Military employment declined by 3,200 and other federal employment declined 980. During that period, manufacturing jobs declined by 538 and farm employment declined by about 500. For the longer period 1978 to 1998 manufacturing employment declined by about 1,700 jobs and farming by about 1,600.



***[F]orest industry employment in Maine will be cut in half every 20 years. During the next decade that would represent a loss of 7,600 forest products jobs.***



***Continued economic decline seems highly likely unless the local economic base is expanded to include new activities.***

If timber harvests are maintained at their current levels, but improvements in labor productivity reduce employment at the same rate that has been experienced since 1952 (a rate also experienced in the 1990s), then forest products jobs can be expected to decline by about 30 percent per decade. In other words, forest industry employment in Maine will be cut in half every 20 years. During the next decade that would represent a loss of 7,600 forest products jobs, 50 percent more than the 5,000 jobs lost between 1989 and 1998. The Maine Department of Labor already has forecast a 3,000-job loss in forest products for the 10-year period 1998-2008.<sup>57</sup>

For the logging and wood products mill sectors, there may also continue to be downward pressure on real wages as employment opportunities shrink and workers are laid off. The combination of declining employment and real wages will mean an even more rapid decline in the payroll associated with wood products jobs. As the flow of wood products earnings into timber towns declines, almost all sectors of the economy will suffer unless those communities diversify their economies and attract new streams of earnings and income. An alternative, higher-wage scenario in logging is the adoption of more mechanized equipment that employs more highly skilled workers whose productivity supports higher wages.<sup>58</sup> That, however, is already accelerating total job loss because, as capital replaces labor, it reduces the need for workers.

It is hard to paint an optimistic “forest products business as usual” scenario for Maine’s northern timber towns. Continued economic decline seems highly likely unless the local economic base is expanded to include new activities. Several paths to diversification have been discussed in Maine. One is the development of more value-added manufacturing that carries the processing of Maine’s forest products further before they are shipped out of state. An expansion, for instance, in the furniture business or the converting of paper into final products such as envelopes, stationery, and paper bags are examples. Some of Maine’s paper mills are already producing higher value paper grades. Maine’s proximity to the densely settled New England and Middle Atlantic states, and its unique location as the closest state on the Atlantic Rim to Europe may give it some advantage in serving these markets.

Another widely discussed idea that offers potential for economic diversification is the further development of businesses that support recreational use of Maine’s forests, lakes, and rivers. Many northern

<sup>57</sup>The labor intensity of the wood products industry may not steadily decline as technology improves. In settings where the value of the wood fiber rises and/or where environmental constraints are imposed, labor intensity can rise. Labor can be used to reduce the waste of wood fiber and to reduce environmental damage. During the 1990s this appears to have been the case in some parts of the Pacific Northwest where high stumpage values led to increased labor intensity and helped pay for more environmentally sensitive (and more labor intensive) harvest methods.

<sup>58</sup>It should be noted that this has not happened thus far. Increased mechanization of logging has taken place as real wages in logging have declined.

---

Maine communities have been modestly moving in this direction for some time. Related to this, but quite different in its character and impact, is the possibility that the natural amenities of northern Maine's forests could draw new permanent residents and new, non-extractive "footloose," business firms. This is the type of amenity-supported economic development that Vermont and New Hampshire have been experiencing. Some of the economic vitality of southern Maine and parts of its coast are tied to this set of economic forces too. The same phenomenon has led to the "resettlement" of the Mountain West as well as many other non-metropolitan areas of the nation.<sup>59</sup> Even in otherwise economically distressed areas like the Great Plains natural amenities have provided some of the few economic bright spots.<sup>60</sup>

The map on the following page shows the contiguous belt of growing counties that stretches from Vermont, New Hampshire, and southern Maine and now bounds the proposed Maine Woods National Park counties on the south and west.<sup>61</sup> (See Figure 9.) The map shows how fast county population grew compared to the average across the nation. The darkest counties on the map, for instance, were growing about as fast as (95 percent of the national growth rate) or faster than the nation. The lightest shaded counties saw populations decline or very slow growth compared to the nation (less than 10 percent of the national average growth rate). That economic vitality in the high growth belt of New England counties is largely amenity-driven or at least amenity-supported. The counties within the proposed Park area may have the same potential for economic diversification if their natural landscapes are protected. We will turn to a discussion of that potential after first discussing the likely impact of the proposed Maine Woods National Park on Maine's timber harvest and forest products industry.

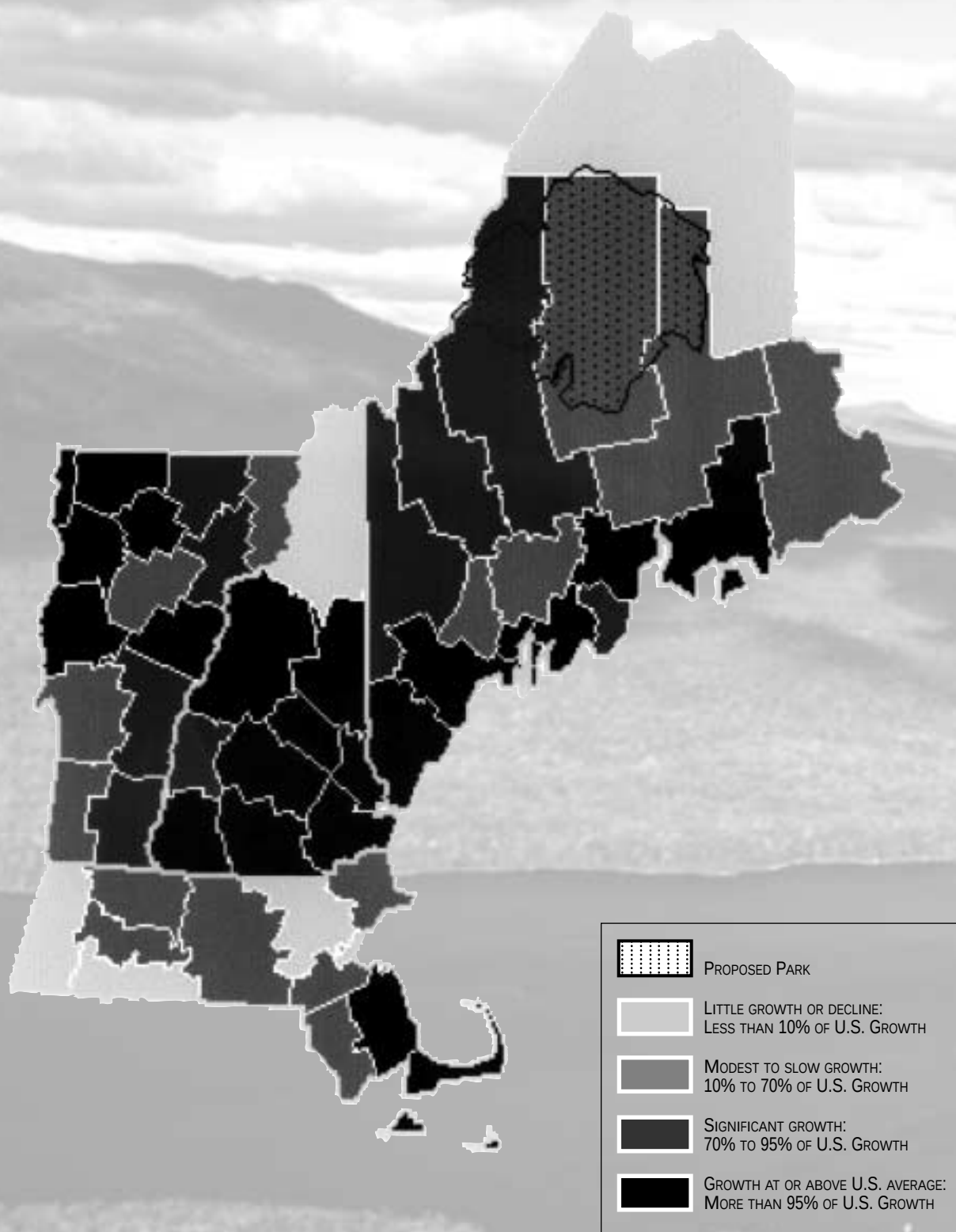
---

<sup>59</sup>Population growth in non-metropolitan and rural areas was widely discussed in the 1970s and early 1980s as a "non-metropolitan turnaround" and "rural rebound." Economic difficulties in these areas in the first half of the 1980s temporarily halted this trend but it returned in the late 1980s and the 1990s. For a discussion of this phenomenon in the 1990s see *Rural Development Perspectives* v. 14, n. 2 (August 1999), for a series of articles on amenity supported economic development in the West; USDA Economic Research Service.

<sup>60</sup>John B. Cromartie, "Net Migration in the Great Plains Increasingly Linked to Natural Amenities and Suburbanization," *Rural Development Perspectives* v. 13, n. 1 (1998), pp. 27-34.

<sup>61</sup>During the year 2000 the economic vitality was reaching into relatively isolated, previously timber-dependent areas, such as Vermont's Northeast Kingdom where economic expansion lead to record low unemployment rates, a labor shortage, and rising real wages. See Kimberly Blanton, "City-Style Labor Crunch Reaches Rural Vermont; Boom Time Has Firms Scrambling," *The Boston Globe* (November 29, 2000), p. A1.

**FIGURE 9: POPULATION GROWTH BY COUNTY RELATIVE TO THE UNITED STATES : NEW ENGLAND 1970-1998**



SOURCE: USDOC, BEA, REIS, 1969-1998 CD-ROM

## II THE IMPACT OF THE PROPOSED MAINE WOODS NATIONAL PARK ON THE MAINE FOREST PRODUCTS INDUSTRY

### A. Introduction and Summary

One of the primary public economic concerns raised by the proposed Maine Woods National Park and Preserve is the expected job loss associated with ending commercial logging in the large forested area of northern Maine that the Park would encompass. This section analyzes that issue.

It is important to put the reduction in timber harvests due to the proposed National Park in the appropriate context. Forest products jobs and payrolls across Maine and in the counties where the Park would be located have been declining. The projections are for a continuing drop in forestry sector jobs and payrolls as technology continues to displace workers. Concerns with the sustainability of the existing level of harvest could accelerate these declines.

Those projected declines in forest products employment and payroll have nothing to do with the proposed Maine Woods National Park. They are tied to technological changes, changing market conditions, and past harvest levels. “Business as usual,” without a National Park, by all indications will involve a shrinking forest products industry. For that reason, when it comes to a decision about the proposed Maine Woods National Park, Maine does not face a choice between either 1) stable or expanding forest products jobs and payrolls or 2) declining forest products jobs and payrolls brought on by the proposed Park. Rather it faces a choice between two scenarios, one with and one without a National Park, both of which include declining jobs and payroll in the forest products industry. A key consideration in evaluating each of these scenarios is whether there are economic forces associated with either that will lead to economic changes that would offset the economic losses in forest products. Based on our analysis of the impacts of National Parks around the country, we conclude that the proposed Maine Woods National Park represents one source of economic vitality that could help to offset the unavoidable declines in the forest products sector of Maine’s economy.

It is important to realize that all impacts associated with the Park, both positive and negative, would occur gradually, probably over several decades, as land is purchased from willing sellers and visitation to the Park slowly grows. The Park and its impacts would not spring into existence instantaneously in the year that Congress authorized the Park. This extended transition would allow the region to slowly adjust to the role that the Park would play in the economy.

Our analysis indicates that the proposed Maine Woods National Park and Preserve would reduce state timber harvests by approximately 11 percent. Put the other way around, almost 90 percent of Maine’s timber harvests could continue. About 13 percent of Maine’s total harvest is now exported unprocessed while at the same time Maine’s harvest is supplemented by the importation of fiber equiva-



***[T]he proposed Maine Woods National Park represents one source of economic vitality that could help to offset the unavoidable declines in the forest products sector of Maine’s economy.***



***In a healthy, vital economy the labor and capital resources that are released when one type of economic activity declines are redeployed in new economic activities.***

lent to 16 percent of the harvest. These combined import and export flows represent almost 30 percent of the Maine harvest. The projected 11 percent reduction in harvest associated with the proposed National Park must be viewed in this context. In other words, a part or all of the decline in timber supply associated with the proposed Park could be offset by changes in the volume of wood exported, unprocessed, largely to Canada, and/or increases in the amount of wood fiber imported into Maine. In addition, harvests across the state could be expected to adjust to the reduced wood flow from the Park area in ways that are also partially offsetting. In our modeling of Park impacts, we also test a larger impact on state timber harvests, a 15 percent decline due to the proposed Park.

The impact on employment resulting from the loss of access to the commercial timberlands in the proposed Park area is difficult to estimate for several reasons. First, as discussed earlier, future timber harvests are likely to be lower than those of the recent past as harvests are reduced closer to sustained yield levels. Second, log flows would adjust to reduced harvests associated with the Park in offsetting ways as, for instance, exports of wood fiber declines and imports increase. Third, since the Maine forest products industry contends that there is a shortage of Maine loggers available to harvest timber and has relied on Canadian workers to supplement the domestic workforce, a reduction in timber harvests need not lead to a reduction in employment opportunities for Maine loggers. The adjustment could be made in the reduced importation of Canadian loggers. In addition, if the logs flowing unprocessed into Canada were re-directed to Maine mills, the employment impact at Maine's mills would also be reduced.

This is not wishful thinking. This is how log and wood fiber markets respond to changes in supply. It is important not to treat job losses as permanent declines in the economy. All economies, those that are expanding as well as those that are contracting, are constantly losing jobs in some industries and occupations. That is a necessary part of an efficient and dynamic economy. What distinguishes growing economies from shrinking economies is not the rate of job loss but the rate of new job creation. In a healthy, vital economy the labor and capital resources that are released when one type of economic activity declines are redeployed in new economic activities. Economic development should focus on such new economic opportunities.

#### **B. The Timber Harvest Associated with the Proposed Maine Woods National Park Area**

The proposed Maine Woods National Park would be centered in Piscataquis County with parts of Somerset and Penobscot Counties also located in the Park. A tiny part of southern Aroostook County would also be affected. About 68 percent of Piscataquis, 26 percent of Somerset, and 21 percent of Penobscot Counties would be located in the proposed Park.

**TABLE 1: THE IMPACT OF THE PROPOSED MAINE WOODS NATIONAL PARK ON TIMBER HARVEST AND JOBS  
ASSUMING 1990s AVERAGE HARVEST AND CONSTANT EMPLOYMENT PER MILLION CORDS HARVESTED**

| Area                              | % of County<br>in Park | Reduced Harvest Due to Park<br>(assuming constant harvest without Park) |                          |                                                | Logging Jobs<br>Affected by the<br>Reduced Harvest<br>(fixed jobs/mmbf) |
|-----------------------------------|------------------------|-------------------------------------------------------------------------|--------------------------|------------------------------------------------|-------------------------------------------------------------------------|
|                                   |                        | Sawlogs<br>(cubic feet)                                                 | Pulpwood<br>(cubic feet) | Total Sawlogs and<br>Pulp Wood<br>(cubic feet) |                                                                         |
| Piscataquis                       | 68.0%                  | 12,457,796                                                              | 23,535,607               | 35,993,403                                     | 94                                                                      |
| Somerset                          | 26.4%                  | 3,024,268                                                               | 9,812,987                | 12,837,255                                     | 151                                                                     |
| Penobscot                         | 20.5%                  | 5,944,283                                                               | 8,350,063                | 14,294,346                                     | 167                                                                     |
| Aroostook                         | .04%                   | 145,061                                                                 | 106,580                  | 251,641                                        | 2                                                                       |
| <b>Park Affected Total</b>        |                        | 21,571,408                                                              | 41,805,237               | 63,376,644                                     | 414                                                                     |
| <b>Park Impact on State Total</b> |                        | 7.4%                                                                    | 15.1%                    | 11.2%                                          | 11.5%                                                                   |

SOURCES: 1998 WOOD PROCESSING REPORT, MAINE FOREST SERVICE; CALCULATIONS BY AUTHOR; SEE TEXT

The 1990-1999 Maine Wood Processor Reports published by the Maine Forest Service show sawlog and pulpwood harvest by county.<sup>62</sup> If these harvests are distributed proportionately to the Park and non-Park lands in each affected county on the basis of forested acres, we can estimate the reduction in harvest that would ultimately result from the establishment of the Park.<sup>63</sup> This is shown in Table 1. Keep in mind that this potential decline in timber harvest would take place slowly over a decade or more as land is acquired for the Park from willing sellers.

The results reported in Table 1 assume that the harvest levels of the 1990s would continue indefinitely if the Park were not established. As discussed above, that is highly unlikely. A significant decline (as much as a third) in timber harvests to bring them into alignment with forest growth is more likely. In addition, the table assumes no job loss due to improvements in labor productivity despite the fact that since 1980 the number of loggers per million cords harvested appears to have been cut in half due to improvements in technology.<sup>64</sup> In addition, this calculation assumes that there is a fixed,

<sup>62</sup>Maine Forest Service, *Woodprocessors Reports* (Augusta, ME: Maine Department of Conservation, 1990-1999).

<sup>63</sup>Projecting the actual harvest that would take place in the proposed Park area would be a very complex undertaking, involving both detailed analysis of stand condition and site productivity and projections of national and international market conditions. Such an analysis is not available. For purposes of this study we have used a very simple proportionality assumption, allocating recent historical harvests to the Park area simply on the basis of the forested land area involved. Given that we are analyzing a large four-county region as well as the whole state and are looking at a time period of a decade or two, the potential error associated with this proportionality assumption is likely substantially reduced.

Our estimate of the impact of the Park on statewide timber harvests is based on the actual distribution of timber harvests during the 1990s. If, instead of looking at where trees were actually harvested, we had assumed that timber harvests in the future would be proportional to the forested land base, the impact of the Park would have been about 15.7 percent, not the 11.2 percent reported in the tables above. In our modeling, we have used both 11 and 15 percent reductions in statewide harvests due to the proposed Park.

<sup>64</sup>Pan Atlantic Consultants and The Irland Group, *Maine Logging Industry and the Bonded Labor Program: An Economic Analysis* (Augusta, ME: Maine Department of Labor, November 1999), Fig. 9, p. 48, and Maine Forest Service, *Woodprocessors Reports* (Augusta, ME: Maine Department of Conservation).

**TABLE 2: THE IMPACT OF THE PROPOSED MAINE WOODS NATIONAL PARK ON TIMBER HARVEST  
ASSUMING 30% REDUCTION IN HARVEST AND ONGOING DECLINE IN JOBS PER MILLION CORDS HARVESTED**

| Area                              | % of County<br>in Park | Reduced Harvest Due to Park<br>(assuming 30% reduction harvest without Park) |                          |                                                | Logging Jobs<br>Affected by the<br>Reduced Harvest<br>(fixed jobs/mmmbf) |
|-----------------------------------|------------------------|------------------------------------------------------------------------------|--------------------------|------------------------------------------------|--------------------------------------------------------------------------|
|                                   |                        | Sawlogs<br>(cubic feet)                                                      | Pulpwood<br>(cubic feet) | Total Sawlogs and<br>Pulp Wood<br>(cubic feet) |                                                                          |
| Piscataquis                       | 68.0%                  | 10,589,126                                                                   | 20,005,266               | 35,594,392                                     | 48                                                                       |
| Somerset                          | 26.4%                  | 2,570,628                                                                    | 8,341,039                | 10,911,667                                     | 77                                                                       |
| Penobscot                         | 20.5%                  | 5,052,641                                                                    | 7,097,553                | 12,150,194                                     | 85                                                                       |
| Aroostook                         | .04%                   | 123,301                                                                      | 90,593                   | 213,895                                        | 1                                                                        |
| <b>Park Affected Total</b>        |                        | 18,335,696                                                                   | 35,534,451               | 53,870,148                                     | 211                                                                      |
| <b>Park Impact on State Total</b> |                        | 7.4%                                                                         | 15.1%                    | 11.2%                                          | 11.5%                                                                    |

Sources: 1998 Wood Processing Report, Maine Forest Service; calculations by author; see text.

Average harvest in the 1990s was 15% below the harvest in the late 1990s; harvest in the future was assumed to be 30% the late 1990s level and 15% below the average harvest in the 1990s.

Between 1980 and 1998 logging jobs per mmcbds harvested declined by 50%; over the next 25 years a 40% reduction was assumed to be associated with ongoing mechanization.

proportional relationship between timber harvest and logging employment. As will be discussed later, this assumption is also highly questionable. Both sets of assumptions significantly exaggerate the adverse impacts of the proposed Park on logging employment.

If the assumptions of a constant harvest and no increase in logging productivity are replaced with more reasonable assumptions, the projected reduction in logging jobs due to the creation of the Park is cut in half as shown in Table 2. This estimate still exaggerates employment impacts due to the assumption that employment is proportional to harvest.

### **C. The Impact of Harvest Reductions in the Area of the Proposed Maine Woods National Park on Forest Products Employment**

#### **i. Changes in Timber Supply and Changes in Jobs**

Estimates of the employment impacts of changes in natural resource supplies, including timber supply, have often been based on an assumption, namely that natural resource industry employment is proportional to local raw material supply. This assumption follows from a materials flow view of the natural resource industries in which extraction and processing facilities are drawn to areas of natural resource supply and the volume of their economic activity is tied to the volume of that supply that is locally available. In that view, if part of the local supply ceases to be available, economic activity, including employment, will decline proportionately. Natural resource firms and agencies have incorporated these assumptions into computerized models that are used to estimate the local economic impacts of changes in raw material supply. The US Forest Service, for instance, originally developed the IMPLAN local economic impact model. It assumes a fixed relationship between raw material inputs and local employment.

Although there is a casual appeal to this way of looking at natural resource industries in general and the forest products industry in particular, it is basically anti-economic since it assumes away the

existence of markets, the role of prices, the potential for substitution, and the impact of changing technologies. In short, it assumes away almost all of the important features of a real world market economy.

Several studies have analyzed the impact of reductions in parts of the local timber supply on employment both in the forest products industry itself and overall employment in local communities. Those studies have found no reliable connection between changes in parts of the local timber supply and employment. One of the most recent studies focused on the “northern forest region,” including Maine. Employment and net in-migration at the county level were analyzed for a large region stretching across the northern tier of states from Minnesota to Maine. The study was interested in the impact on employment of different amounts of the forested land base being classified as “public conservation lands” such as national and state forests, parks, and wildlife refuges. In particular, it was interested in what the impact on employment had been of the decline in timber harvests from National Forest lands during the 1990s. Those declines in the part of local timber supply coming from federal lands had been significant. When average annual harvests from National Forests in the northeastern states in the 1980s are compared to those harvests in the 1990s, the decline was 42 percent; in the Lake states the decline was 22 percent. The study found no evidence that these declines in part of the local timber supply had any impact of local employment. Nor did higher concentrations of conservation land or lands on which timber harvest was restricted have a negative impact on employment.<sup>65</sup>

Studies of the impact of changes in the availability of federal timber on forest products employment in Oregon came to a similar conclusion. Despite the fact that National Forests make up 50 percent of the commercial timberland and, for the period studied, provided about 40 percent of the annual harvest, changes in National Forest timber sales and timber harvests had no significant impact on employment in the forest products sectors.<sup>66</sup> Analysis of the impact of National Forest timber harvests on local communities in Western Montana where federal timber is also a very important part of total timber supply also indicated little impact on aggregate local employment.<sup>67</sup> Researchers have studied the accuracy of the predictions

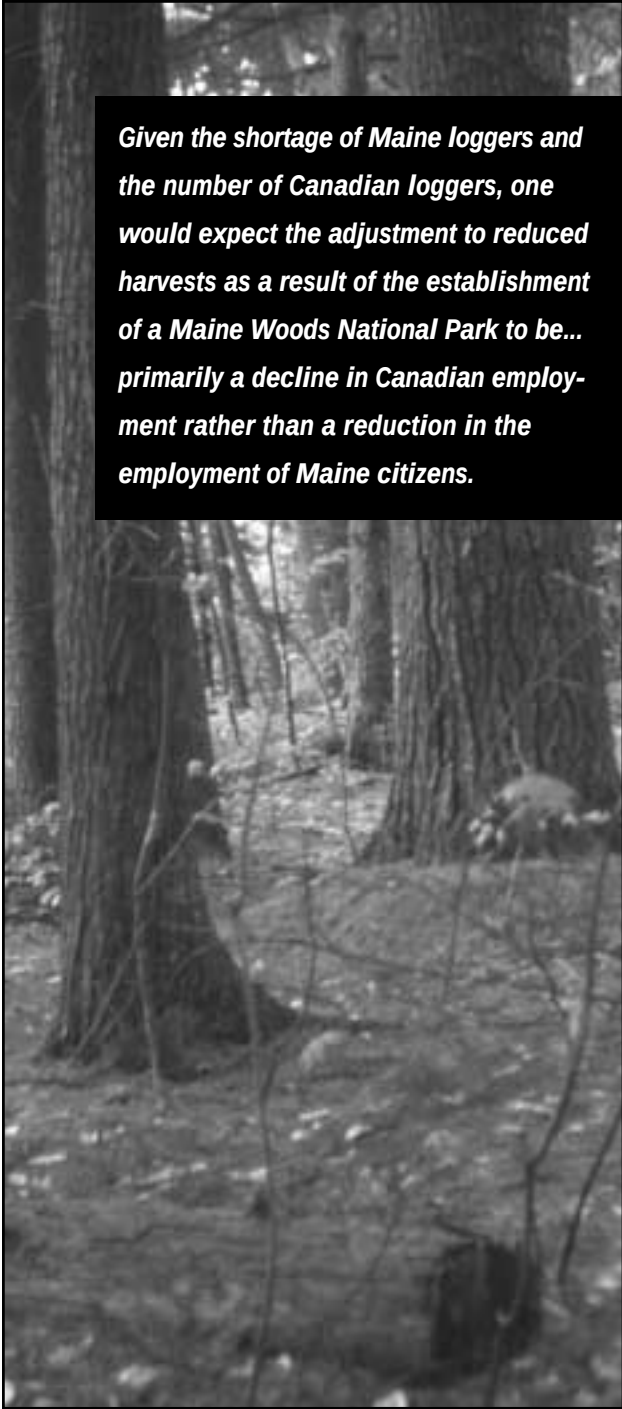


***One of the most recent studies [that] focused on the “northern forest region,” including Maine...found no evidence that these declines in part of the local timber supply had any impact of local employment.***

<sup>65</sup> David J. Lewis, Gary L. Hunt, and Andrew J. Plantinga, “Public Conservation Land and Employment Growth in the Northern Forest Region,” forthcoming in *Land Economics* (Madison, WI: University of Wisconsin, 2001). Note: the term, “northern forest region” is often used to refer to the area of Maine, New Hampshire, Vermont, and New York encompassed by the federal-state Northern Forest Lands Study. It is also used to describe the area studied by Lewis and Plantinga, which includes northern Maine, New Hampshire, Vermont, and New York, as well as northern Michigan, Wisconsin, and Minnesota.

<sup>66</sup> Diana M. Burton, “An Astructural Analysis of National Forest Policy and Employment,” *American Journal of Agricultural Economics* 79 (August 1997), pp. 964-974; Diana M. Burton and Peter Berck, “Statistical Causation and National Forest Policy in Oregon,” *Forest Science* v. 42, n. 1 (1996), pp. 86-92.

<sup>67</sup> Steven E. Daniels, William F. Hyde, and David N. Wear, “Distributive Effects of Forest Service Attempts to Maintain Community Stability,” *Forest Science* v. 37, n. 1 (1991), pp. 245-260.



***Given the shortage of Maine loggers and the number of Canadian loggers, one would expect the adjustment to reduced harvests as a result of the establishment of a Maine Woods National Park to be... primarily a decline in Canadian employment rather than a reduction in the employment of Maine citizens.***

of local economic impacts that flow from input-output models (such as the US Forest Service's IMPLAN model) and economic base models. Such models assume a linear relationship between federal timber supply and local employment. The analysis of employment predictions for Montana and Idaho found such models could not predict total employment more accurately than a simple "no change" scenario.<sup>68</sup>

## **ii. Market Responses to Changes in Raw Material Supplies**

Economists are not surprised that a reliable link cannot be found between changes in raw material supply and employment in extraction and processing. Economic activity is not primarily driven by fixed material or physical relationships. As physical supplies change, prices change, the incentives to other suppliers and processors change, flows of raw materials change, substitutions among inputs into the production process change, technological change proceeds and is modified, etc. In addition, supply is just one half of the economic relationships that determine market outcomes. The demand for the raw material and the products it can produce are very important too. It is often fluctuations in the demand for wood and paper products that determine the level of employment, not the size of the locally available raw material supply. When the national or world economy slows or housing starts are down, employment falls regardless of how large the raw material supply is.

The importance of these market-based economic adjustments to changes in part of the raw material supply can be seen in the forest products industry of Maine and other regions.

The most direct impact of the reduced harvest in northern Maine due to the creation of the proposed Maine Woods National Park would be on the loggers who actually work in the area. If logging employment is assumed to be directly tied to the level of harvest, the reduction in logging employment would be between 50 and 170 jobs in each of the three most affected counties depending upon which assumptions are made about future harvests and logging productivity. Maine's forest products industry, however, insists that there is a shortage of loggers available in northern Maine. That shortage has been used to justify the use of Canadian loggers in Maine for many decades. Currently about a quarter (900) of Maine's loggers are Canadian citizens.<sup>69</sup> Forty years ago, over 6,000 Canadian woods workers were certified to work in the Maine woods. As logging employment has declined, much of the adjustment was made through a reduction in the Canadian workforce. Given the shortage of Maine loggers and the number of Canadian loggers, one would expect the adjustment to reduced harvests as a result of the establishment of a Maine Woods National Park to be made in a similar

<sup>68</sup>E. V. Schuster and E. L. Medima, "Accuracy of economic impact analysis," *Journal of Forestry* v. 87, n. 8 (1989), pp. 27-32.

<sup>69</sup>*Ibid.*, p. 2.

way, primarily a decline in Canadian employment rather than a reduction in the employment of Maine citizens.

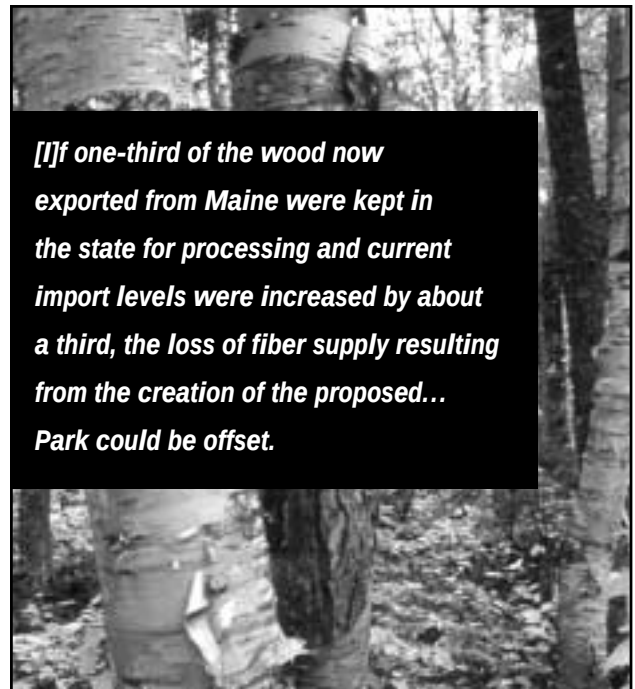
Estimating the impact of reduced timber harvests on employment in Maine's forest products processing facilities is more difficult. Maine exports a substantial part of its sawlog harvest unprocessed. Between 1990-1999 an average of 22 percent of the harvest left the state without passing through a Maine mill. Many of these logs flowed directly from the proposed Park area to Canadian mills. In addition, the Maine harvest was supplemented by 9 percent by the importation of logs from out-of-state.<sup>70</sup>

These sawlog flows contrast with the estimated 7 percent reduction in Maine sawlog harvests associated with the establishment of the proposed National Park. In addition, Maine mills that in the past received their logs from the area of the proposed Park would be likely to seek logs from harvests elsewhere in Maine and the region. As a result, relatively modest changes in log flows could completely offset the estimated decline in harvest. Given the log flows into Canada, much of the adjustment would be expected to take place in Canada, not Maine.

The pulpwood harvest in the proposed Park area represents about 15 percent of the total state pulpwood harvest. Maine pulp and paper mills, however, import about 23 percent of the fiber they use. About 4 percent of the pulpwood harvested in Maine is shipped unprocessed out-of-state.<sup>71</sup> As with sawlogs, a combination of increased imports and/or decreased exports could offset much of the impact of the reduced harvest of pulpwood as a result of the proposed Park.

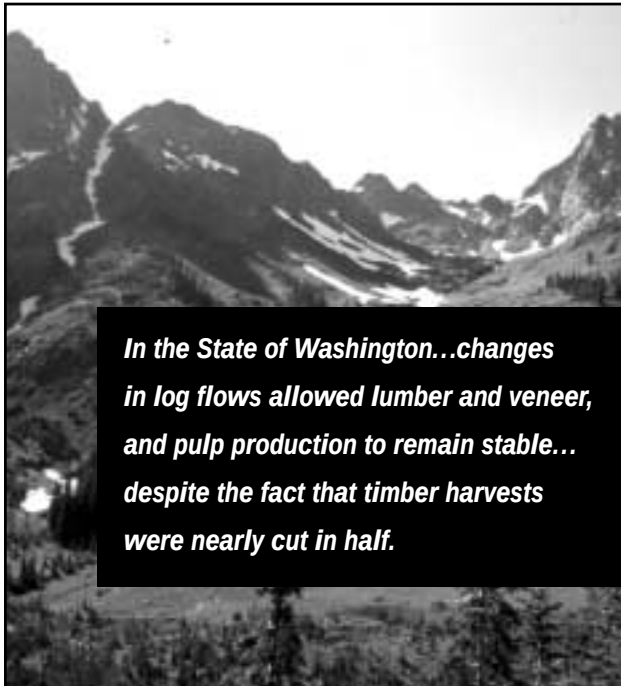
In terms of the flow of sawlogs and pulpwood combined, about 13 percent of the total harvest is exported unprocessed while the Maine harvest is supplemented by an inflow of fiber equivalent to 16 percent of the harvest. These combined flows represent almost 30 percent of the Maine harvest. This contrasts with the 11 percent reduction that would be associated with the Park. Thus, if one-third of the wood now exported from Maine were kept in the state for processing and current import levels were increased by about a third, the loss of fiber supply resulting from the creation of the proposed Maine Woods National Park could be offset.

In other words, much of the reduced harvest due to the proposed Park could be offset by changes in log flows, not only within surrounding states and provinces, but also within Maine. Such changes in log flow patterns are exactly what would be expected in a market setting when one source of supply is reduced. In that situation, processing facilities rarely just give up and shut down; they pursue alternative supplies. That is exactly what has happened in Maine



<sup>70</sup>Maine Forest Service, *Woodprocessors Reports* (Augusta, ME: Maine Department of Conservation, 1990-1999).

<sup>71</sup>Ibid.



*In the State of Washington...changes in log flows allowed lumber and veneer, and pulp production to remain stable... despite the fact that timber harvests were nearly cut in half.*

over the last decade as the wood fiber source preferred by pulp and paper mills declined. Paper mills increasingly relied not on roundwood directly but on the waste products flowing from lumber mills. Given the reduced supply available, the roundwood flowed directly to sawmills and the waste from those mills then flowed to the pulp and paper mills. In addition, the pulp and paper mills increased their use of imported pulp including recycled fiber. A significant change in the supply of different types of wood fiber available in Maine did not lead to major disruptions in production. Instead, market adjustments in the flow of raw materials allowed production of both wood products and paper products to continue.

Adjustments in harvests from federal lands in the Pacific Northwest provide some guidance for the size of the adjustments in log flows that are possible. In the State of Washington, federal timber harvests declined by 92 percent between 1988 and 1998. Total Washington timber harvests from all ownerships fell by 45 percent. Forest products output, however, remained stable while employment declined by only 14 percent.<sup>72</sup> The primary reason that forest industry production and employment were much more stable than total harvests was that the export of unprocessed logs from the state declined by 70 percent. In addition, pulp mills increasingly relied on wood chips from lumber mills instead of roundwood; that roundwood instead flowed to lumber mills. Also, as harvest on federal lands declined, harvests from private, non-industrial timber lands grew, partially offsetting the federal decline. Finally, logs harvested in British Columbia were attracted by the higher prices being offered in Washington. These four changes in log flows allowed lumber and veneer, and pulp production to remain stable in Washington despite the fact that timber harvests were nearly cut in half.<sup>73</sup> At the same time, job growth across the State of Washington between 1988 and 1998 generated more than 800,000 net new jobs, in part due to the attractiveness of the state's increasingly protected forested landscapes.<sup>74</sup> Although the forest products industry had projected a catastrophic collapse of state and local economies, even the creation of a "new Appalachia," nothing of the sort happened. Instead employment and income opportunities expanded significantly at both the state and local levels.<sup>75</sup> This expe-

<sup>72</sup>US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, CD-ROM (1969-1998).

<sup>73</sup>Dave Larsen and Phil Aust, Washington Mill Survey, 1986-1996: *Has the Sun Really Set on Washington State's Forest Products' Industry?* Paper prepared for the 34th Annual Pacific Northwest Regional Economic Conference (Washington State Department of Natural Resources, April 26, 2000). It should be pointed out that log and wood fiber flows changed not only in response to the higher prices being paid for logs but also in response to reduced demand in East Asia due to the economic slow down there. How much production could have been maintained at Pacific Northwest mills if demand for logs in Asia had not slackened is unclear. However, in almost any circumstances, the rising raw material prices and increased supply from other sources would have offset a significant part of the reduced federal supply.

<sup>74</sup>E. Niemi and E. Whitelaw, *Why the Sky Did Not Fall in the Pacific Northwest* (Eugene, OR: ECONorthwest, 1998); employment growth from US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, CD-ROM (1969-1998).

<sup>75</sup>E. Niemi and E. Whitelaw, 1998.

---

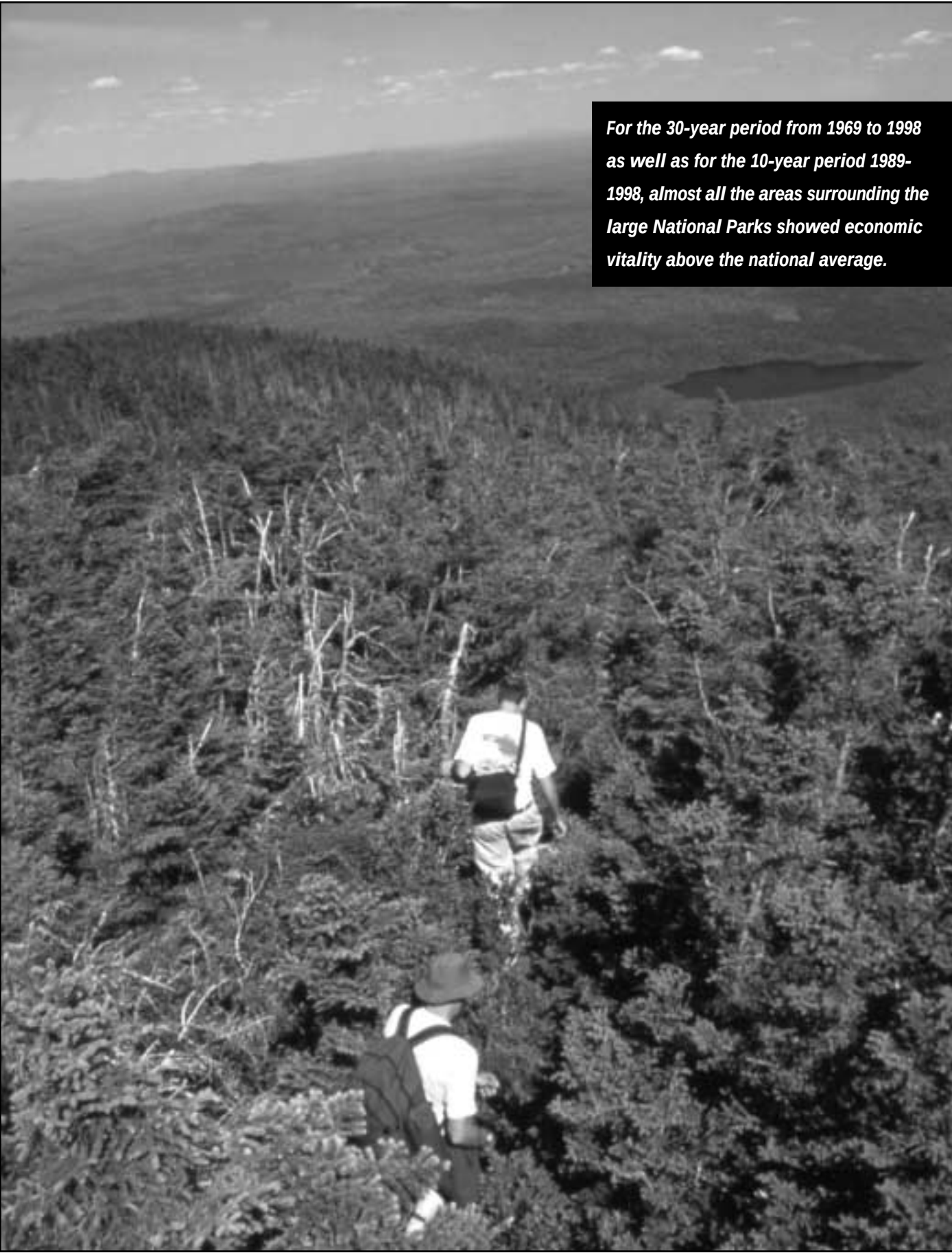
rience in another timber region should provide an important caution about accepting the assumption that a reduction in Maine's timber harvest will bring major economic damage in its wake.

The overall flow of US softwood logs and lumber products was also modified as a result of the rise in the lumber prices in the mid-1990s. US exports of softwood logs declined by 60 percent and US exports of softwood lumber declined by 45 percent.<sup>76</sup> Clearly the flow of wood fiber is flexible and adjusts to changes in relative supply and demand.

The important point is that markets respond to impending shortages in supply in ways that tend to reduce, if not eliminate, those shortages. Given the modest impact that the proposed Maine Woods National Park would have on total Maine wood fiber supply, one can expect market adjustments in the flow of raw materials to relieve much of the projected reduction in wood supply resulting from the establishment of the Park. Simply assuming that there would be a fixed, proportional reduction in employment associated with reduced timber harvests in the proposed Maine Woods National Park assumes away the market economy in which Maine and the Maine forest products industry is embedded.

---

<sup>76</sup>USDA Foreign Agriculture Service data; Lloyd C. Irland, "Should the Log and Wood Products Trade Be Regulated in the Northeastern Borderlands?," *Canadian-American Public Policy* (Orono, ME: Canadian-American Center, University of Maine), n. 42 (July 2000), Fig. 4, p. 9.



*For the 30-year period from 1969 to 1998 as well as for the 10-year period 1989-1998, almost all the areas surrounding the large National Parks showed economic vitality above the national average.*

### III THE ROLE OF NATIONAL PARKS IN PROMOTING LOCAL ECONOMIC VITALITY

#### A. Introduction and Summary

One major concern about the establishment of a National Park in northern Maine is that it could have a negative impact on local economies. Because the land that would be included in the proposed Park is now part of a “working forest” from which raw materials are extracted to support local economic activity, one might assume that converting those commercial forests to parklands and ending logging on them could do significant damage to local economies.

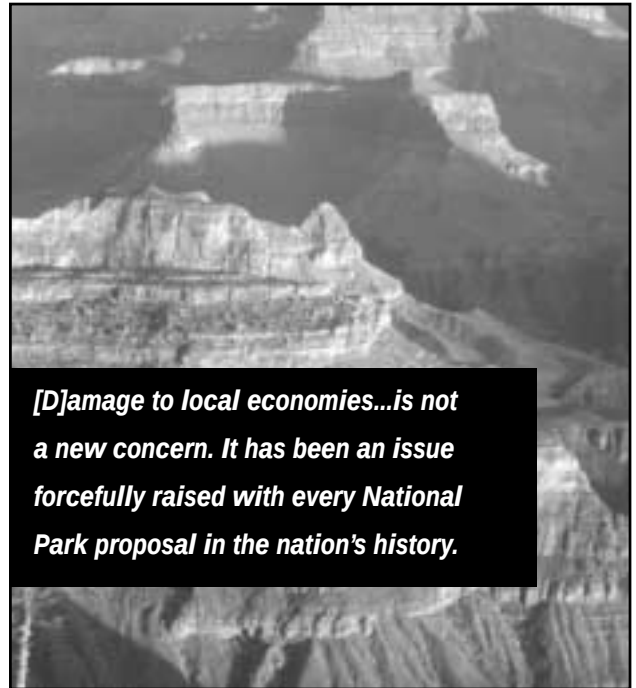
This is not a new concern. It has been an issue forcefully raised with every National Park proposal in the nation’s history, including some of the National Parks that are now considered national treasures and local economic prizes such as Yellowstone, Yosemite, Great Smoky Mountains, Olympic, and North Cascades National Parks. For instance, when the creation of Yellowstone National Park was being debated in the early 1870s, the Helena, Montana *Rocky Mountain Gazette* editorialized that creating a park would “keep the country a wilderness and shut out travelers for many years... A great blow struck at the prosperity of the towns of Bozeman and Virginia City which might naturally look to considerable travel to this section, if it were thrown open to the curious but comfort-loving public.”<sup>77</sup>

In order to test the assertion that the allocation of a large land area to a National Park and the prohibition of most commercial uses of the natural resources associated with that land inevitably damages the local economy, we have analyzed all of the large National Parks in the lower 48 states.

For the 30-year period from 1969 to 1998 as well as for the 10-year period 1989-1998, almost all the areas surrounding the large National Parks showed economic vitality above the national average. Approximately 90 percent of the large National Park areas showed above average population and job growth and saw aggregate real income rise at above average rates. Averaged across all 22 large National Park areas, for the 30-year period, job growth was almost 3 times faster than the national average. Aggregate real income grew twice as fast as the national average.

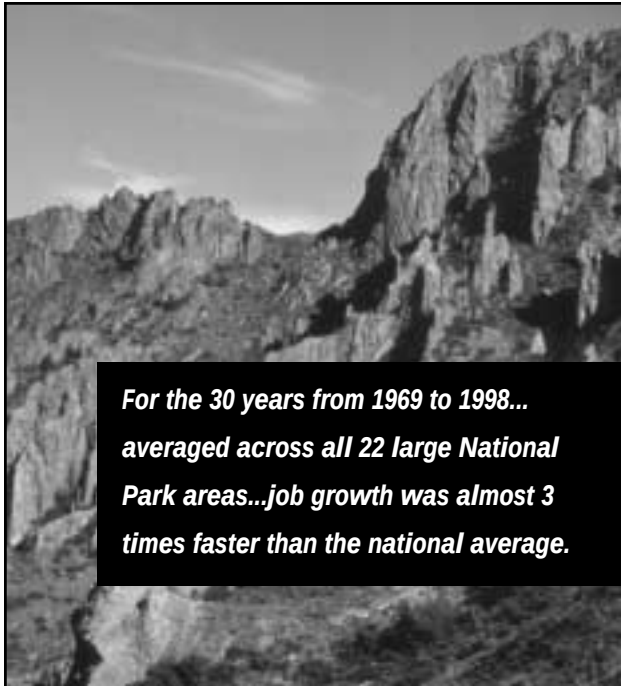
#### B. National Park Area Analysis

Our analysis focuses on all of the large National Park System units (e.g., National Parks and Preserves, National Recreation Areas, and National Monuments) in the lower 48 states. “Large” was defined to mean those with more than 250,000 acres. There were 22 such large National Parks areas. The economic vitality of the 45 counties in which those large National Parks were located was analyzed by looking at growth in population, employment, and real income.



***[D]amage to local economies...is not a new concern. It has been an issue forcefully raised with every National Park proposal in the nation's history.***

<sup>77</sup>Op. cit., p. 184.



Two time periods were used: the 30-year period, 1969-1998, and the 10-year period, 1989-1998. All of the National Parks and counties studies are listed in Appendix A. Two approaches were taken to summarizing the results. First, the counties adjacent to each National Park were aggregated and the overall impact of the Park on that group of counties was analyzed. Second, each of the counties was considered separately so that the gains in one county would not obscure the losses in another county. In this section we report on the groups of counties associated with each National Park.

For the longer period of analysis, the 30 years from 1969 to 1998, almost all the areas surrounding the large National Parks showed above average economic vitality. Ninety-one percent of the large National Park areas showed above average population and job growth. Eighty-six percent saw aggregate real income rise at above average rates. A third of these large National Park areas had above average growth in real per capita income. Averaged across all 22 large National Park areas, population growth was faster than the national average. Job growth was almost 3 times faster than the national average, and aggregate real income grew twice as fast as the national average.

Over this 30-year period, all of the large National Park areas showed some signs of above average economic growth. The Isle Royale area off the coast of the Upper Peninsula of Michigan in Lake Superior only saw per capita incomes grow (slightly) more rapidly than in the nation. That area also saw very little population growth. The Big Bend area in Texas, another isolated National Park, also saw below average population and aggregate real income growth but had above average income and job growth. Canyonlands in Utah saw below average growth in aggregate income but had above average growth in jobs and population. All of the other large National Park areas had above average growth in population, jobs, and aggregate real income.

Most large National Park counties are non-metropolitan or rural in character. If per capita income in non-metropolitan America is used as the reference point, per capita incomes in the large National Park counties were about 15 percent above the non-metro US average and almost 60 percent of these counties had per capita incomes above the non-metro US average. Large National Park counties, when compared to similar rural areas, are doing better than other US counties in terms of per capita incomes. Between 80 and 90 percent of the large National Park counties analyzed here had higher per capita income levels than the rural counties where the proposed Maine Woods National Park would be located.

If, however, the large National Park areas are compared to the overall national average (which is dominated by the 80 percent of the population that lives in metropolitan areas), per capita incomes are below the national average. This is not surprising. If an area is attracting people because of locally specific characteristics to which

people prefer to have access, such as protected natural landscapes, recreation opportunities, and an overall higher quality of life, a (relatively) “surplus” workforce is likely to put downward pressure on wages. In addition, most National Parks are located in non-metropolitan areas and have lower costs of living than the nation’s larger urban belts.<sup>78</sup> Because residents are willing to sacrifice a certain amount of income in order to have access to those attractive site-specific qualities, businesses do not have to pay as high a wage to retain the workforce they want. In this situation, however, the lower per capita incomes do not indicate that the population is worse off. The lower incomes are compensated for by the amenity values and lower cost of living that the local area has to offer. The value of those landscape and social amenities are the “second paycheck” that workers receive, which, when combined with their money income, leaves them about as well off as they could be elsewhere. That is why these areas continue to attract new population despite providing somewhat lower per capita incomes.

During the most recent decade (1989-1998) the results are similar. Again 91 percent of the 22 large National Park counties analyzed had above average population and job growth. Two-thirds saw aggregate real income grow at above average rates and about half (45.5 percent) saw per capita incomes grow faster than the national average.

Averaged across all of the 22 large National Park areas analyzed, between 1989 and 1998 population grew faster than the national average. Jobs grew twice as fast as in the nation as a whole and aggregate real income expanded 70 percent faster. Growth of real per capita income was about the same as the national growth rate.

During the 1989-98 period all of the large National Park areas showed some signs of above average economic vitality. One, the Death Valley area, showed above average growth only in population while experiencing below average growth in the other three economic indicators. None of the large National Park areas showed a decline in population in the 1990s, although the two most isolated, Big Bend and Isle Royale, had very slow population growth compared to the national average. Only one area, that around Death Valley, saw employment contract during this period. The Everglades area saw employment grow at 90 percent of the national rate. All of the other large National Park areas had above average job growth. None of the National Park areas saw aggregate real income decline.<sup>79</sup>

### **C. Individual National Park County Analysis**

In this section we look at each individual National Park county rather than grouping together the counties associated with each National Park. There were 45 individual counties associ-

*Protected natural landscapes, recreation opportunities, and an overall higher quality of life...are the ‘second paycheck’ that workers receive.*



<sup>78</sup>Of course there are exceptions to this. Where developable land is in short supply, land values and cost of living can rise around National Parks. Jackson, Wyoming, adjacent to Grand Teton National Park provides an example of this.

***In 1998, the average income in these large National Park counties was about a third higher than that in the rural counties in Maine where the proposed Park would be located.***



ated with the 22 large National Parks studies. This allows us to see, for instance, that around Glacier National Park one county showed spectacular economic vitality while another had slower growth. When grouped together these divergent performances are obscured.

Over the last 30 years (1969-98) most large National Park counties have experienced robust economic vitality. Eighty-four percent of the large National Park counties had above average population growth; 82 percent had above average job growth; and 80 percent had above average aggregate real income growth.

On average, population growth in the large National Park counties was 3.6 times as fast, job growth was 2.5 times as fast, and aggregate income grew about twice as fast as in the nation as a whole. Per capita incomes in the large National Park counties were about 15 percent above the non-metro US average and almost 60 percent of these counties had per capita incomes above the non-metro US average.

Only 2 of the 45 large National Park counties showed no signs of increased economic vitality in excess of the national average, Inyo in California, and Glacier in Montana, two of the same three that also grew more slowly in the 1990s. None of the economic indicators for any of the large National Park counties studies actually declined during this 30-year period.

During the most recent decade (1989-98) the results are similar, 82 percent of the large National Park counties had above average population growth and 80 percent had above average job growth. Two-thirds had above average growth in aggregate real income. About half had above average growth in per capital income.

For the whole set of 45 counties, between 1989 and 1998, population grew 2.3 times, jobs grew 2.1 times, and aggregate real income grew 1.6 times the national average. Real per capita income grew at about the national rate. In 1998, the average income in these large National Park counties was about a third higher than that in the rural counties in Maine where the proposed Park would be located.

When these large National Park counties are compared to the rural counties in which the proposed Maine Woods National Park would be located, the dramatically lower economic trajectory those northern Maine counties are on is apparent. Job creation was four to six

<sup>79</sup>The large National Park areas that showed the slowest economic expansion, Big Bend, Isle Royale, and Death Valley, are all unusually isolated. Big Bend National Park is located in southwestern Texas along the border with Mexico. It is several hundred miles from the closest metropolitan area. Isle Royale is located in Lake Superior and is isolated from the Upper Peninsula of Michigan by the width of Lake Superior. It lies just off shore of Thunder Bay in Ontario, Canada. If the Thunder Bay area, rather than the Michigan Upper Peninsula were used as the economic area adjacent to the park, the measured level of economic vitality might be much higher. Death Valley, of course, is desert country isolated from both California and Nevada population centers.

**TABLE 3: ANNUAL ECONOMIC GROWTH RATES, 1969-1998, IN NORTHERN MAINE AND LARGE NATIONAL PARK COUNTIES**

| <b>Economic Indicator</b> | <b>Large National Park Counties<br/>(45 counties)<br/>(unweighted)</b> | <b>Proposed MWNP<br/>3 Northern Maine Non-<br/>Metropolitan Counties</b> | <b>Piscataquis County</b> |
|---------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------|
| Job Growth                | 3.7%                                                                   | 0.6%                                                                     | 1.0%                      |
| Real Income Growth        | 4.3%                                                                   | 1.5%                                                                     | 1.6%                      |
| Population Growth         | 2.8%                                                                   | -0.1%                                                                    | 0.4%                      |

Sources: USDOC, BEA, REIS, 1969-1998 CD-ROM

times faster between 1969 and 1998 in the large National Park counties while total personal income grew almost three times faster than the Maine Park counties. (See Table 3.)

During the most recent 10 year period, only 3 of the 45 counties showed growth that was slower than the national average or showed very minor contractions: Mono and Inyo Counties in California and Glacier County in Montana.<sup>80</sup>

#### **D. Economic Vitality in Recently Created National Parks**

Most of the large National Parks analyzed above were created many decades ago. Some, like Yellowstone National Park, were created more than a century ago. Although current economic vitality in communities adjacent to these well-established National Parks tells us something important about their continuing capacity to support local economic vitality, that data does not tell us anything about the impact of creating a new National Park on the local economy.

To analyze this question we looked at large National Parks created since 1968. These included the North Cascades and Redwood National Parks created in 1968, the Guadalupe Mountains National Park created in 1972, the Voyageurs National Park created in 1975, the Channel Islands and Kenai Fjords National Parks created in 1980, and the Great Basin National Park created in 1986. Employment and population growth in the counties adjacent to these new National Parks were compared to the average growth in other non-metropolitan counties in the nation (except for the few counties that were metropolitan counties which were compared to national growth rates). The time periods for the comparison were the most recent decade, 1989-1998, and the previous two decades (1979-1998).

In general, employment and population growth rates in these new National Park counties were well above the national averages for both time periods. Over the last two decades, in four of the six areas

<sup>80</sup>In Inyo County, California, population declined about 1 percent and in Glacier County real per capita income declined about 2 percent. Otherwise there was growth, but slower than the national average, in the other economic indicators. Mono and Inyo Counties are isolated counties separated from the bulk of California's population and economic activities by the Sierra Nevada Mountains. Seventy-five percent of Glacier County is the Blackfeet Indian Reservation. It is relatively isolated by the Rocky Mountains, the Northern Great Plains, and the Canadian border. Three other counties showed above average growth during the 1990s in only one of the economic indicators, population. They were Dade County, Florida, and Mariposa and Tuolumne Counties, California.

**TABLE 4: ECONOMIC VITALITY IN COUNTIES ADJACENT TO NEW NATIONAL PARKS CREATED IN THE 1970s AND 1980s**

| National Park  | Indicator  | Percentage Growth |           | Growth Relative to Nation |           |
|----------------|------------|-------------------|-----------|---------------------------|-----------|
|                |            | 1989-1998         | 1979-1998 | 1989-1998                 | 1979-1998 |
| Channel Is.    | Population | 9%                | 39%       | 122%                      | 363%      |
| Channel Is.    | Employment | 15%               | 60%       | 83%                       | 202%      |
| Great Basin    | Population | 10%               | 32%       | 141%                      | 300%      |
| Great Basin    | Employment | 8%                | 50%       | 44%                       | 167%      |
| Guadalupe Mts. | Population | 11%               | 13%       | 157%                      | 126%      |
| Guadalupe Mts. | Employment | 20%               | 25%       | 113%                      | 83%       |
| Kenai Fjords   | Population | 21%               | 105%      | 285%                      | 985%      |
| Kenai Fjords   | Employment | 22%               | 108%      | 122%                      | 362%      |
| N. Cascades    | Population | 25%               | 48%       | 345%                      | 447%      |
| N. Cascades    | Employment | 30%               | 67%       | 168%                      | 223%      |
| Voyageur       | Population | -2%               | -13%      | -26%                      | -119%     |
| Voyageur       | Employment | 19%               | 10%       | 105%                      | 35%       |

around the new parks, there was above average employment growth and in five of the six areas there was above average population growth. Over the last ten years, there was above average employment growth in four of the six new National Park areas and above average population growth in five of the six areas. The primary exception to the rule of enhanced economic vitality in the areas surrounding these new National Parks was Voyageurs National Park where population declined during both the shorter and longer time period and employment grew relatively slowly. See Table 4 above.

A recent study of the economic impact of the Kenai Fjords National Park on the Seward, Alaska, area by the University of Alaska's Institute of Social and Economic Research confirmed the positive impact of the creation of that particular National Park on an isolated economic area. In the 25 years following the creation of the Park, local employment grew at an average annual rate of 3.7 percent. The study concluded that: "The Kenai Fjords National Park is widely regarded as the primary magnet, along with recreational fishing in Resurrection Bay, for most of this growth... The park's headquarters is located in Seward, so park visitors automatically become Seward visitors. The National Park has elevated Seward's profile as a visitor destination across the country and indeed the world."<sup>81</sup> The study also found that there is now widespread agreement among Seward residents that the Park has been good for the visitor industry, the economy, and the community as a whole.

#### **E. National Parks and Economic Expansion: Interpreting These Results**

The data discussed in the previous sections clearly demonstrate that National Parks are typically associated with invigorated, not depressed, economies. This should not be surprising. Modern trans-

<sup>81</sup>Scott Goldsmith and Stephanie Martin, *ANILCA and the Seward Economy* (Anchorage: AK: Institute of Social and Economic Research, University of Alaska, April 2001).

portation and communications technology have made economic activity more flexible in terms of where it “has” to be located. In addition, the shift in economic activity from heavy manufacturing and natural resource extraction to light manufacturing and services has also allowed the geographic decentralization of economic activity. As economic activity has become more “footloose,” the economic role of workers’ and business owners’ preferences for high quality living environments has grown in importance. The economic development and economic vitality of areas have increasingly come to hinge upon their ability to attract and hold people. This makes local quality of life an important part of the economic base. Large National Parks, by granting permanent protection to extensive natural landscapes, create locations where people can be confident that air and water quality, wildlife, open space, and outdoor recreation opportunities will be permanently protected. Moreover, because National Parks are viewed as special by most Americans,<sup>82</sup> any community near a Park is likely to benefit from an enhanced image and visibility among those seeking a high quality of life. Those places are likely to draw new residents, businesses, and economic activity, laying the basis for a dynamic and vital economy.

It needs to be pointed out, however, that the relationship between National Parks, natural amenities, and local economic vitality is complex and this report has only studied the general association of National Parks with local economic vitality. Unique natural landscapes are amenities themselves whether or not they are part of a National Park. National Parks often are created in order to protect those unique landscapes. In that setting, it is not necessarily just the National Park that is attractive; the surrounding natural landscapes are too. Classifying part of that landscape as a National Park might not have much impact by itself, separate from the natural landscapes being protected. There is empirical evidence that will be discussed later that it is not just National Parks that are associated with higher levels of economic vitality. The same is true of National Wilderness Areas, state parks, and National Forest land.

<sup>82</sup>See Diane Zaslowsky, *These American Lands* (New York: Holt and Company, 1986), p. 9: “The...units of our own national park system...are the portion of federally retained lands that Americans encounter soonest, understand best, and cherish most.”

There is ample evidence that this statement is accurate. Most Americans have visited a National Park at one time or another, making them a prominent part of our culture. In the year 2000, the National Park System received almost 286 million visits, of which 66 million were to one of the 56 National Parks. National Park Service, *National Park 2000 Visitor Use Summary* (<http://www2.nature.nps.gov/stats/repsummary.htm>).

Public opinion polls consistently indicate that Americans have a very positive view of the National Parks. For example, in a 1998 nationwide poll of attitudes toward government, 85 percent of respondents had a favorable opinion of the National Park Service. This was higher than major agencies such as the Centers for Disease Control, Department of Defense, Food and Drug Administration, National Aeronautic and Space Administration, Federal Aviation Agency, Environmental Protection Agency, and Social Security Administration. Only the US Postal Service received a higher ranking: 89 percent. The Pew Research Center for the People and The Press, *Deconstructing Distrust: How Americans View Government* (March 10, 1998, <http://www.people-press.org/trustrpt.htm>).

***Large National Parks...create locations where people can be confident that air and water quality, wildlife, open space, and outdoor recreation opportunities will be permanently protected...Those places are likely to draw new residents, businesses, and economic activity, laying the basis for a dynamic and vital economy.***



***[O]ne can confidently assert that National Parks are not associated with economically depressed communities, the concern that is often raised about the proposed Maine Woods National Park.***



In addition, because the American West was the last part of the nation to be settled and industrialized, many of the large National Parks and Wilderness Areas are located in that region. This entire region has seen above average rates of economic growth for several decades, especially compared to the north central and northeastern states. One could argue that this regional economic growth is spilling over into National Park counties. That is, the growth is part of a regional pattern, not associated with the presence of National Parks. Although this is a legitimate concern, it is built around the assumption that natural amenities, including the presence of National Parks, Forests, and Wilderness Areas had nothing to do with the economic vitality found in the West. In addition, it assumes that the same association of economic vitality with National Parks is not found outside of the West. Neither appears to be true. Economic vitality is found in areas around Eastern as well as Western National Parks including Acadia National Park in Maine. Furthermore, in explaining the above average rates of economic growth found in almost every single non-metropolitan county of the West during the 1990s, economists have increasingly turned to the natural amenities associated with the region.<sup>83</sup> In fact, the very idea of natural amenities as a force in explaining local economic vitality was first developed by an economic geographer during the 1950s who was trying to explain the ongoing growth in the Southwest and Pacific Northwest that did not appear to be associated with either region's traditional economic base.<sup>84</sup>

The relationship between natural amenities, National Parks, and local economic vitality is a complex one. At the very least, one can confidently assert that National Parks are not associated with economically depressed communities, the concern that is often raised about the proposed Maine Woods National Park. Far more plausible is an association with enhanced economic vitality.

Our analysis shows that the large National Park areas that demonstrate the least economic vitality are Parks that are unusually isolated. The proposed Maine Woods National Park would not be so isolated. The outer boundary of the Bangor Metropolitan Area is within 20 miles of the Park's southern boundary. Moreover, because National Parks are viewed as special by most Americans, any community near a Park is likely to benefit from an enhanced image and visibility among those seeking a high quality of life. Interstate 95 almost touches the eastern boundary of the proposed Park in the East Millinocket-Medway area and follows that eastern boundary for many miles. A major east-west link across northern Maine, State Route 6, skirts the southern border of the Park. US Highway 201 provides access from western Maine. Because it would be relatively

<sup>83</sup>See *Rural Development Perspectives* v. 14, n.2 (August 1999) for a series of articles on amenity supported economic development in the West. Economic Research Service, USDA.

<sup>84</sup>E. Ullman, "Amenities As a Factor in Regional Growth," *Geographical Review* v. 44, n. 1 (1954), pp. 119-32.

accessible from Maine as well as from New England and eastern Canadian population centers, the pattern of economic development around other accessible large National Parks appears to be the most analogous in projecting likely economic impacts of the proposed Maine Woods National Park.

It should be kept in mind that the economic vitality described above in the areas surrounding these large National Parks developed in most cases over a 30 year period, often after the National Park had been in existence for an even longer period of time. The economy did not launch into an explosive boom as soon as each park was created. The economies developed in a relatively slow and sustained manner over time. Many of the large National Parks are located in the most rapidly growing parts of the nation, the Mountain West, the Far West, and the Southeast. Part of the growth found in the areas around the large National Parks is certainly tied to this regional growth rather than just to the Parks.<sup>85</sup> Maine and New England faced slower population growth. For that reason, the growth in areas around the proposed Maine Woods National Park could be expected to be much more moderate than that found around the large National Parks in those more rapidly growing regions. Given that the area around the proposed Park has been losing population in recent years, the economic vitality that is expected to be associated with the proposed Park would offer an opportunity to reverse these losses and stimulate modest expansion.

Finally, the economic growth in National Park counties detailed above is not offered as a pure economic benefit. It is not. That economic growth has been emphasized not out of an uncritical “boosterism” that favors any and all quantitative expansion of local economies but because many have asserted that the Maine Woods National Park would cause substantial economic decline in northern Maine. The fact that National Parks are usually associated with the opposite behavior of local economies is offered not in praise of rapid economic growth but in rebuttal to this particular factual claim that appears to be false.

Rapid economic growth adjacent to National Parks can threaten both the National Parks and the local communities. The growth puts pressure on the very landscapes that National Parks are supposed to protect. That same growth can also cause sprawl that damages the natural environment outside of the Park. The same sprawl can drive up land and housing costs making housing unaffordable to middle and lower income households. The larger population and large volumes of visitors can lead to congestion that reduces the quality of life.

<sup>85</sup>As discussed above, saying that the growth in a particular county or community is tied to the high rate of economic growth in the larger region does not explain very much. The question remains as to why the region itself is growing. In the Mountain West it seems clear that natural landscape amenities have played a very important role. The same is no doubt true of parts of the Southeast.



***Given that the area around the proposed Park has been losing population in recent years, the economic vitality that is expected to be associated with the proposed Park would offer an opportunity to reverse these losses and stimulate modest expansion.***



***Economic research has repeatedly demonstrated that areas with high quality natural environments that are protected by official park or wilderness status have been able to attract higher levels of economic activity.***

Of course, stagnation and economic decline bring with them an unattractive set of consequences that can also damage communities, quality of life, and the natural landscape. What most communities seek is a level of economic vitality that does not threaten their community or the natural landscape surrounding it but provides them and their children with an attractive range of economic opportunities. A later chapter will provide our estimates of the employment impacts of the proposed Maine Woods National Park. We do not project rapid, disruptive growth as a result of the proposed National Park. Rather, we expect economic stabilization and slow expansion.

#### **F. National Parks, Amenities, and Local Economic Vitality**

The relatively high rates of population, job, and real income growth in counties adjacent to National Parks reported here are not new findings. Economic research has repeatedly demonstrated that areas with high quality natural environments that are protected by official park or wilderness status have been able to attract higher levels of economic activity. As a result, those areas show signs of superior economic vitality. Most of that research has centered on the Western United States because of the concentration there of many of the larger National Parks and Wilderness areas.

Statistical analysis of the economies of all of the counties of the Western states showed that higher percentages of county land protected by National Park, National Monument, and the National Wilderness System status were associated with higher rates of employment growth between 1969 and 1997. Even when only the more rural (non-metropolitan) Western counties were considered, those counties with more than 10 percent of their land in National Parks, Monuments, and Wilderness saw job growth 1.85 times the average for Western non-metropolitan counties; income grew 1.43 times faster. The amount of National Park, Monument, and Wilderness within 50 miles of a Western county's center was positively correlated with both income and employment growth for both the 1969-1997 and 1990-1997 periods. The strength of the correlation rose as the analysis shifted from all counties to non-metropolitan counties to purely rural counties.<sup>86</sup>

A study of the impact of state parks on employment and population growth in 250 rural Western counties found that state parks served as an amenity, attracting population and supporting employment growth.<sup>87</sup> A similar analysis of the impact of federal Wilderness Areas and National Parks in the Mountain West found that when a rural county was adjacent to a National Park population growth was higher compared to counties not adjacent to Parks. In addition,

<sup>86</sup>Southwich Associates, *Historical Economic Performance of Oregon and Western Counties Associated with Roadless and Wilderness Areas* (2000), pp. 19 and 24. The correlation coefficients for the most rural counties (no city greater than 2,500) were 0.33 and highly significant. The correlation was also significant for all Western counties as well as all Western non-metropolitan counties.

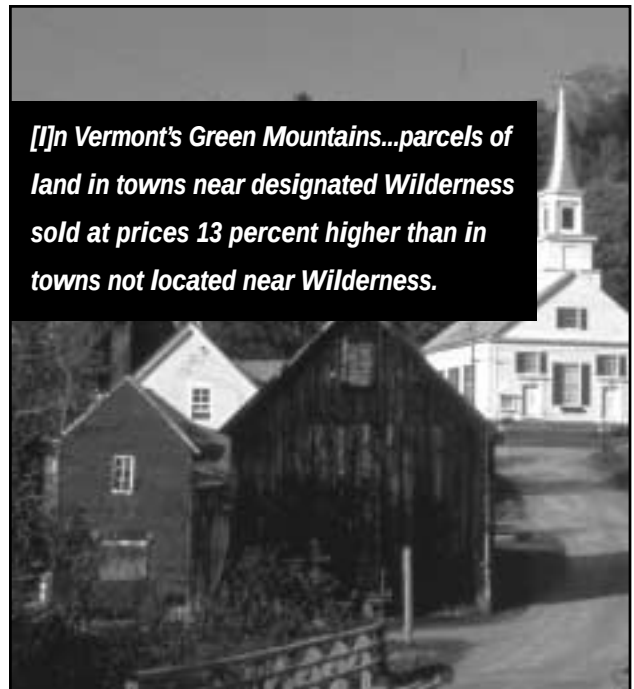
<sup>87</sup>Kevin T. Duffy-Deno, "The Effect of State Parks on County Economies of the West," *Journal of Leisure Research* v. 29, n. 2 (1997).

there was no negative impact of Wilderness designation on employment or population.<sup>88</sup>

Researchers puzzled by the growth of population in Western Montana despite low wages and incomes studied the location of new residential housing to determine what locational characteristics explained the decisions homebuilders were making. They found that the closer a location was to a National Park the higher the likelihood of new construction. The same was true of designated Wilderness Areas. Distance to Montana's larger population centers and access to major highways were also important. These new homeowners want to live near protected natural areas but also value ease of access to trade centers and regional airports.<sup>89</sup> Another economist seeking to understand the spatial patterns of economic development in the rural Mountain West also focused on the tension between access to urban areas and closeness to protected natural areas. In this case the focus was on urban centers that were not within commuting distance. He also found that the presence of a National Park led to faster rates of both employment and population growth but that growth decreased with distance from a metropolitan area. So, again, people seek to have their cake and eat it too: enjoy the protected natural landscapes but maintain at least some loose links with metropolitan areas.<sup>90</sup>

The impact of protected landscapes on the attractiveness of areas as residential locations has also been documented in New England and other regions. A statistical analysis of the value of over 6,000 land parcels that were recently bought and sold in Vermont's Green Mountains revealed that the existence of Wilderness enhanced nearby land values. Parcels of land in towns near designated Wilderness sold at prices 13 percent higher than in towns not located near Wilderness. Land prices decreased by 0.8 percent with each kilometer of distance away from the nearest Wilderness Area boundary.<sup>91</sup>

Analysis of economic development in rural counties near large Wilderness Areas has found that population growth in those counties is somewhat higher than the growth rate for either the state as a whole or the major urban area in the state. During the 1990s, the advantage of the rural wilderness counties over the state and urban averages expanded.<sup>92</sup> Another researcher found similar results for the Rocky Mountain West even when he focused on truly rural



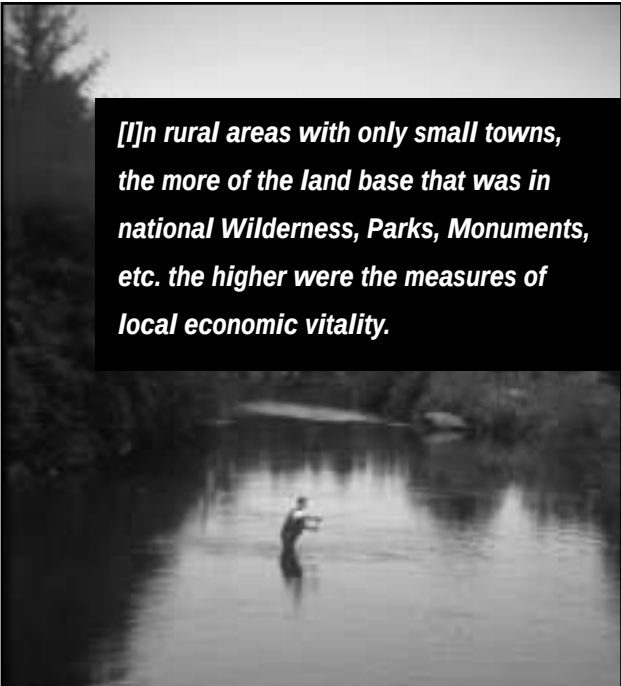
<sup>88</sup>Kevin T. Duffy-Deno, "The Effect of Federal Wilderness on County Growth in the Intermountain Western United States," *Journal of Regional Science* v. 38, n.1 (1998), pp. 109-136.

<sup>89</sup>David H. Jackson and Kenneth Wall. *Mapping and Modeling Real Estate Development in Rural Western Montana* (Missoula, MT: Bolle Center for People and Forests, University of Montana, School of Forestry, Discussion Paper No. 2, 1995).

<sup>90</sup>Douglas E. Booth, "Spatial Patterns in the Economic Development of the Mountain West," *Growth and Change* v. 30 (Summer 1999), pp. 384-405.

<sup>91</sup>Spencer Phillips, *Windfalls for Wilderness: Land Protection and Land Value in the Green Mountains* (Craftsbury Common, VT: The Wilderness Society, Ecology and Economics Research Group, 1999).

<sup>92</sup>Douglas E. Booth, *Economic Development Near Big Wilderness in the Western U.S.* Unpublished working paper, Milwaukee, WI: Marquette University, Economics Department, 1996).



***[I]n rural areas with only small towns, the more of the land base that was in national Wilderness, Parks, Monuments, etc. the higher were the measures of local economic vitality.***

counties, those that had no communities with more than 2,500 residents. That study included as federally protected natural areas not only federal Wilderness Areas but also National Parks and National Monuments. Relatively high correlations were found between measures of the relative importance of these protected national lands as a percentage of total county land and several measures of economic vitality: employment, per capita income, total aggregate income, and population growth.<sup>93</sup> That is, in rural areas with only small towns, the more of the land base that was in national Wilderness, Parks, Monuments, etc. the higher were the measures of local economic vitality.

Rudzitis has also shown that federal protection of landscapes through National Parks and Wilderness designations does not slow local economic growth. In fact, such protection was associated with growth rates two to six times those for both other non-metropolitan areas and two to three times those of metropolitan areas over the 1960-1990 period. His research clearly indicated that the protected lands drew new residents who were willing to sacrifice a certain amount of income in order to live in the higher quality natural environments that they perceived federally protected landscapes provided.<sup>94</sup>

A recent University of Maine analysis of migration patterns and employment change in the Northern Forest region of the United States, including Maine, confirms the positive impact on in-migration of public lands dedicated to conservation. The study looked at rural forested counties in northern Maine, New Hampshire, New York, Michigan, Wisconsin, and Minnesota sought to determine what impact increased concentrations of public “conservation lands” had on in-migration and employment in these rural forested counties. Conservation lands included national and state forests, national and state parks, and public wildlife refuges. The focus was on the 1990-1997 time period during which timber harvests on federal lands declined dramatically as conservation objectives increasingly limited commodity production. The study, like many others, found that, in general, jobs were following people’s residential location decisions rather than people passively moving to where employment opportunities were. In addition, the more of a county that was publicly owned land which was managed for conservation objectives, the higher was the rate of economic growth. The impact, however, was, as the authors’ pointed out, relatively small: An 11 percentage point increase in the share of the county that fell into the conservation land category led to a 1 percentage point increase in the 1990-1997 net in-migration rate. That enhanced in-migration then had an indirect positive impact on employment that was similarly modest in size: a 10 percentage point increase in the

<sup>93</sup>Paul Lorah, “Population Growth, Economic Security, and Cultural Change in Wilderness Counties,” in David N. Cole and Stephen F. McCool, *Proceedings: Wilderness Science in a Time of Change* (Ogden, UT: USDA Forest Service, Rocky Mountain Research Station, 2000).

<sup>94</sup>Gundars Rudzitis, *Wilderness and the Changing American West* (New York: John Wiley and Sons, 1996), Fig. 7.1 and pp. 112-116.

share of the county that was in conservation lands led to a 1 percentage point increase in the employment growth between 1990 and 1997.<sup>95</sup> Given that timber harvests were falling on federal conservation lands during this time period, the positive impact of the presence of these lands on in-migration was impressive. If the indirect impacts of this in-migration on employment are applied to the change in the amount of conservation land in northern Maine that would be associated with the creation of the Maine Woods National Park, the impact on employment would be a gain of about 4,000 jobs over a 10 year period.<sup>96</sup>

This University of Maine analysis of the impact of public conservation lands also sought to determine if more restrictive protection had a positive or negative impact on local economic vitality. The more restrictive “preservation” category included National Parks, State Parks, and federally designated Wilderness Areas. There are no large National Parks in this Northern Forest area. The largest is the Voyageurs National Park in northern Minnesota at 218,000 acres. This tends to reduce the value of that study for an analysis of the impact of a large National Park. The “preservation” lands category was dominated by the Adirondack State Park in New York and the Boundary Waters Canoe Area Wilderness in Minnesota. The study found that the presence of such more restricted-use public lands had no significant impact on county economies, either positive or negative.<sup>97</sup>

Other researchers have focused not on the location decisions made by individuals but those made by business firms. With the shift from goods production to the production of services, in particular knowledge-based services such as those involved in research, insurance,

<sup>95</sup>David Lewis and Andrew J. Plantinga, *Public Conservation Lands and Economic Growth in the Northern Forest Region* (Orono ME: Maine Agricultural and Forest Experiment Station, Miscellaneous Publication 748, 2001). In the authors’ summary of their results, they say “we found that conservation lands had no systematic effect on employment growth over the 1990 to 1997 period.” They also say “...we find no evidence that conservation lands should be viewed as a tool for promoting job growth in rural communities.” This conclusion is tied to the fact that when the direct impact of conservation lands on employment (which was not statistically significant) is combined with the indirect impact (which was significant), the overall impact on jobs, while positive, was not statistically different from zero.

<sup>96</sup>The percentage of the county area in conservation status would increase 68, 21, and 26 percent respectively for Piscataquis, Penobscot, and Somerset Counties. The job impact over eight years (the time period of the original study) would be 3,163; over 10 years it would be 3,953; over 20 years it would be 7,906.

<sup>97</sup>*Ibid.*, pp. 24-25. Since conservation public lands had a significant impact but the preservation component of those lands did not, it clearly was the less restricted type of public lands that was responsible for the positive impact. If these results were applied to the wildlands of northern Maine, they might be interpreted to imply that public ownership of these lands for conservation management purposes would stimulate local economic vitality, but National Park status could not be confidently projected to do the same. Given the absence of significant National Park land in this study and the evidence from elsewhere in Maine and the nation on the positive impacts of National Parks, we do not believe that would be an appropriate interpretation of this particular study. The period of the study’s focus, the 1990s, was a period during which timber harvests on National Forests fell toward zero and those public lands were managed more for wildlife, recreation, and other environmental values, similar to the way a National Park would be managed. In that sense, the study confirmed that shifts towards preservation and away from commodity production had positive impacts on local economies, not negative impacts.



***If the indirect impacts of this in-migration on employment are applied to...the Maine Woods National Park, the impact on employment would be a gain of about 4,000 jobs over a 10 year period.***



***The evidence from the rest of the nation suggests that the Acadia experience in Maine is typical of a strong general association of National Parks with local economic vitality rather than with stagnation or decline.***

finance, and high technology, more firms have become relatively “footloose.” The success of these companies is less dependent on location than on obtaining the highly qualified personnel they need at a reasonable cost. So National Parks and other protected natural landscapes appear to draw economic activity to nearby communities.<sup>98</sup> As a result, natural amenities become an important part of a region’s economic base. As one recent study of the role of environmental quality and the location of high tech firms put it:

“Amenities and the environment—particularly natural, recreational, and lifestyle amenities—are absolutely vital in attracting knowledge workers and in supporting leading-edge high technology firms and industries. Knowledge workers essentially balance economic opportunity and lifestyle in selecting a place to live and work. Thus, lifestyle factors are as important as traditional economic factors such as jobs and career opportunity in attracting knowledge workers in high technology fields. Given that they have a wealth of job opportunities, knowledge workers have the ability to choose cities and regions that are attractive places to live as well as work. The new economy dramatically transforms the role of the environment and natural amenities from a source of raw material and a sink for waste disposal to a key component of the total package required to attract talent and in doing so generate economic growth.”<sup>99</sup>

Residents of Maine do not have to look only to the West to gather evidence of the positive impact that a National Park can have on local economic vitality. In Hancock County, Maine, where Acadia National Park is located, employment and population growth rates were three times those of the state as a whole between 1989 and 1998. In the four northern Maine “Park” counties combined, employment and population actually declined for the same time period. The Hancock County growth rates exceeded the average for all of the nation’s non-metropolitan areas. In addition average income in Hancock County in 1998 was above both the Maine average and the US non-metropolitan average and \$4,500 per person or 23 percent above the average for the four “Park” counties combined. In Maine, this experience in the Acadia National Park area is sometimes taken as not particularly relevant to what might happen in northern Maine with a National Park. The evidence from the rest of the nation suggests that the Acadia experience in Maine is typical of a strong general association of National Parks with local

<sup>98</sup>John L. Crompton et al., “An Empirical Study of the Role of Recreation, Parks and Open Space in Companies’ (Re)location Decisions,” *J. of Park and Recreation Administration* v. 15, n. 1 (1997), pp. 37-58; J. Johnson and R. Rasker, “The Role of Amenities in Business Attraction and Retention,” *Montana Policy Review* v. 3, n. 2 (1993), pp. 11-19; Ray Rasker, “A New Look at Old Vistas: The Economic Role of Environmental Quality in Western Public Lands,” *University of Colorado Law Review* v. 65, n. 2 (1994), pp. 369-97.

<sup>99</sup>Richard Florida, *Competing in the Age of Talent: Environment, Amenities, and the New Economy*, report prepared for the R. K. Mellon Foundation, Heinz Endowments, and Sustainable Pittsburgh (Carnegie Mellon University, H. John Heinz III School of Public Policy and Management, 2000), p. 5. Other studies have come to the same conclusion. See, for instance, Thomas W. Bonnett’s *Competing in the New Economy: Governance Strategies for the Digital Age* (Philadelphia: Xlibris, 2001).

---

economic vitality rather than with stagnation or decline. We will discuss economic development in Hancock County and the role of Acadia National Park in the next chapter.

## G. Conclusion

National Parks, like the proposed Maine Woods National Park, are usually located in rural areas where the historical natural resource industries (agriculture, logging, mining, commercial fishing, etc.) that supported those areas in the past are often in long term decline as sources of employment and income. In that setting National Parks have often provided a crucial economic bridge to a new, more diverse economic base that combines the down-sized natural resource industries with the economic activity drawn to the area by the same natural amenities that led the National Park to be created. Part of this is associated with Park visitation (tourism) but most of it is associated with the relocation of new permanent residents and non-tourist businesses. A recent analysis provides a succinct summary of the role of National Parks in local economic development:

“This clear pattern suggests that national park areas have significant value to communities, especially rural areas in which declining opportunities hamper the basis for the regional economy. In places that have lost their way as a result of the change from industrial to postindustrial economy or for those that have never found it, national park areas serve as an important component of regional growth...

Often overlooked as an economic engine, National Parks provided enormous economic and social benefits, especially in rural areas. As these examples show, they create infrastructure, provide employment opportunities, and maintain the social fabric, mitigating the kind of dislocating change found in unregulated tourist communities. In many places having a national park area, for local people, means the difference between making a living at home and being forced to leave in search of work elsewhere.

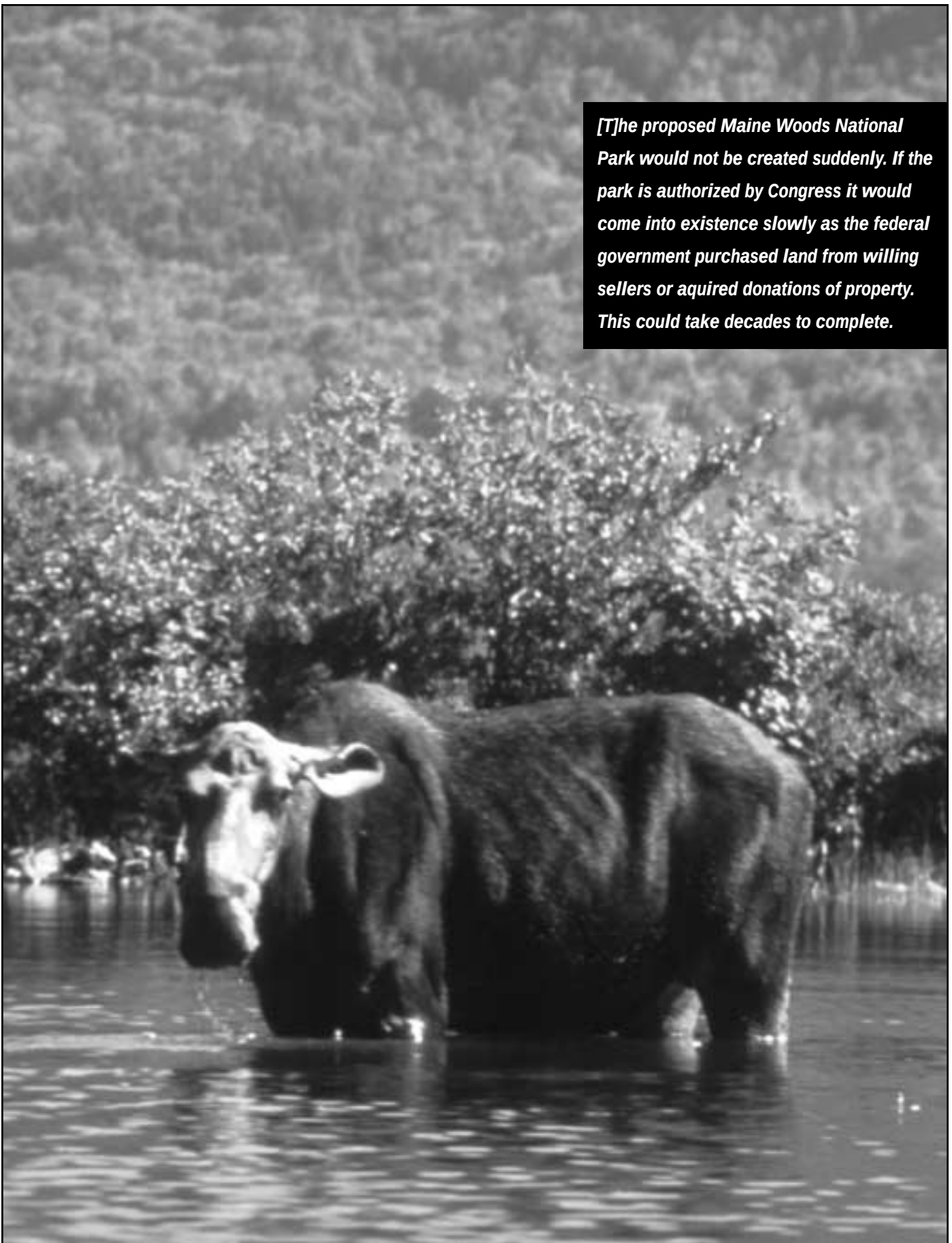
To date, the role of national parks as a tool of development has been overlooked, often even by the sponsoring agency. As the national park and global economy become more service oriented, national parks can play an enormous and significant role as a replacement for declining employment opportunities in industries such as mining, agriculture, and ranching. Existing parks have the ability to put people to work, creating an economic backbone in declining regions...The greatest local value of national parks may be the ways in which they create opportunity that cushions communities and individuals against the impact of wholesale change.”<sup>100</sup>

Across the US, National Parks tend to be associated with unusually vital local economies.

---

<sup>100</sup>Hal K. Rothman, “A History of U.S. National Parks and Economic Development,” in Gary E. Machlis and Donald R. Field (eds), *National Parks and Rural Development: Practice and Policy in the United States* (Washington DC: Island Press, 2000), p. 55.

*[T]he proposed Maine Woods National Park would not be created suddenly. If the park is authorized by Congress it would come into existence slowly as the federal government purchased land from willing sellers or aquired donations of property. This could take decades to complete.*



## IV. THE NET ECONOMIC IMPACT OF THE PROPOSED MAINE WOODS NATIONAL PARK

### A. Introduction and Summary

The discussion thus far has focused on the two primary impacts of creating a Maine Woods National Park: The impact of reduced timber harvests due to the proposed Park and the stimulating effect of National Parks on local economic vitality. This section integrates those two impacts and estimates the likely net impact of the proposed Park on total employment and overall economic health in Maine.

To put this analysis into context, it is important to understand that the proposed Maine Woods National Park would not be created suddenly. If the Park is authorized by Congress it would come into existence slowly as the federal government purchased land from willing sellers or acquired donations of property. This could take decades to complete. Baxter State Park, for instance, was created as a result of Percival Baxter purchasing the 200,000 acres of land over a 30-year period starting in 1930. That means that the economic impacts, both positive and negative, would not be sudden but would develop gradually over many years. Timber harvest, for instance, would not immediately drop to zero within the boundaries of the proposed Park. Rather, commercial logging would decline slowly as land was added to the Park. Because the landowners most interested in selling or donating first are likely to be those who expect the least profitability from timber management of their lands, initial land acquisitions for the Park may have little impact on timber harvest.<sup>101</sup> Similarly, there would not suddenly be a Park to which millions of visitors would flock. For a period, while the land was being purchased, the Park would be a work in progress. During that transition period, the National Park Service would be required under the law and its regulations to cooperate with state, local interests, and the public, to develop a plan for public access, facilities, visitor centers, fees, rules, etc. At some point, the Park would officially open and visitation would slowly build.

This report assumes that the land for the Park would be acquired over a ten-year period. That is probably an unrealistically rapid parkland acquisition schedule, but it is used here to make sure impacts are not underestimated. The analysis here also assumes that visitation to the Park would rise slowly over a 20-year period. Similarly, the growth of new permanent residents and economic

*[O]ver a 20 year period, while a Maine Woods National Park was put into place: The Park could support the creation, on net, of about 3,600 additional direct jobs in the area immediately around the Park.*

<sup>101</sup>Some have expressed concern that once Congress approves the creation of such a Park, landowners in the affected area will seek to take advantage of the situation by first harvesting all of the standing trees and then holding out for a high price from federal buyers. The fear is this would lead the land to be further damaged rather than protected. This has not been the pattern when other National Parks have been created and private holdings have had to be purchased. Federal land buyers are hard-nosed professionals who pay market values and are willing to wait to make the purchase later. Land from which the timber inventory has been removed has a much lower market value than land with a standing, commercially valuable, timber inventory. Federal land purchasers will make clear to potential sellers the consequences of liquidating that timber inventory on the price land owners can expect.

**TABLE 5: ASSUMPTIONS USED IN THE MAINE WOODS NATIONAL PARK DIRECT EMPLOYMENT IMPACT SCENARIOS**

| Assumption                             | Low Scenario    | Middle Scenario | High Scenario         |
|----------------------------------------|-----------------|-----------------|-----------------------|
| Decline in Jobs per Unit of Harvest    | 1.75%/yr        | 2.5%/yr         | 3.5%/yr               |
| Reduction in State Harvest             | 10%             | 20%             | 30%                   |
| Reduction in State Harvest Due to Park | 15%             | 11%             | 11%                   |
| Impact of Harvest on Employment        | proportional    | proportional    | half of impact offset |
| Park Visitation Level at End of 20 yr. | 650,000         | 1.3 million     | 1.95 million          |
| Amenity-Supported Growth Rate          | 0.5% job growth | 1% job growth   | 1.5% job growth       |

activity drawn by the natural amenities associated with the Park was also spread over a 20-year period.

In order to bracket the likely direct impacts of creating the Maine Woods National Park, we have made use of 3 scenarios built around different assumptions that affect the employment impacts of the proposed Park. The “middle” scenario is focused on the set of assumptions that flow from the analysis thus far. It represents our judgment as to the most likely impacts. We also test a set of assumptions that would reduce the positive impact of the proposed Park and expand the negative impacts. This is labeled the “low” growth scenario. Similarly we have analyzed the implications of a set of assumptions that expand the positive and reduce the negative impacts of the proposed Park. This is labeled the “high” growth scenario. The assumptions made for each scenario are shown in Table 5 above.

In the analysis that follows, we estimate that the following changes would take place slowly, over a 20 year period, while a Maine Woods National Park was put into place:

- The Park could support the creation, on net, of about 3,600 additional direct jobs in the area immediately around the Park.
- About 1,500 forest products jobs could be phased out due to the conversion of commercial forestland to a National Park (over and above the many forest products jobs that will be lost regardless of whether the Park is created).
- Visitors to the Park could generate directly about 1,500 new jobs.
- New residents drawn to the area by the protected natural landscapes could be responsible directly for another 3,600 jobs.

The importance of amenity-supported economic development is confirmed both by the earlier analysis of other large National Parks as well as by a comparison of economic vitality between the areas around Acadia National Park (Hancock County) and the proposed Maine Woods National Park (Piscataquis County).

#### **B. Quantifying the Potential Change in Forest Products Jobs**

As land is acquired for the proposed Maine Woods National Park, timber harvesting from that land would end causing timber supply from the Park area to decline over the assumed 10-year period. About

11 percent of Maine's timber supply is associated with the area of the proposed Park. There is considerable concern over the impact of this reduction in part of Maine's timber supply on the state and local economies, especially employment.

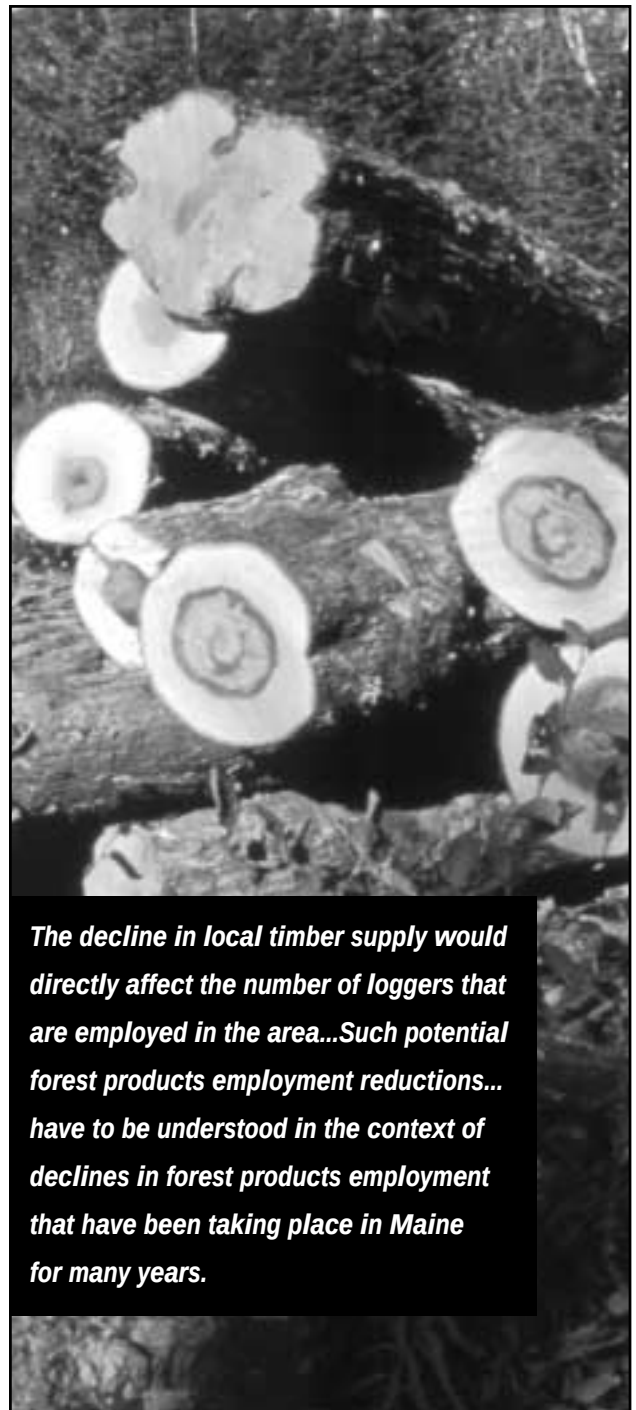
The decline in local timber supply would directly<sup>102</sup> affect the number of loggers that are employed in the area. In addition, as the flow of raw material from these lands declines some of the state's mills may reduce the number of workers they employ.<sup>103</sup> Such potential forest products employment reductions resulting from the creation of the proposed Park have to be understood in the context of declines in forest products employment that have been taking place in Maine for many years.

Even if a Maine Woods National Park is not created, forest products employment in Maine will decline for two reasons. First, the employment supported per unit of fiber harvested will continue to decline as it has during the 1990s and throughout the last half of the 20th century. As discussed above, the historical rate of decline of jobs per million cords or million board feet harvested has been about 3.5 percent per year, cutting the employment associated with a fixed harvest in half every 20 years. For our middle scenario of the employment impacts, we have assumed an ongoing decline in the labor intensity of forest products but at a rate about a third slower, 2.5 percent per year.

In addition, as discussed earlier, in recent years logging has exceeded sustainable levels, especially on large industrial timberland holdings in the area of the proposed Park. When two factors—the reduced availability of land for timber management due to changes in land use and the harvesting of the most suitable lands first—are also taken into account, the need to reduce harvests in the future is even greater. In this analysis, we have assumed that over the next two decades harvests would have to be reduced by 20 percent statewide, regardless of whether a Park is created. Our earlier analysis supported a larger decline, 30 percent.

The impact of reduced harvest due to the Park on forest products employment is difficult to estimate. The direct impact would be on logging employment. But there is currently a shortage of Maine loggers that has led to the use of Canadian loggers. The reduction in logging employment, presumably, would simply reduce the shortage of American loggers. The reduced employment would, at least in part, take place in Canada, not in Maine.

Neither, as discussed above, would the reduction in Maine harvests due to the Park lead to a proportional reduction in Maine forest

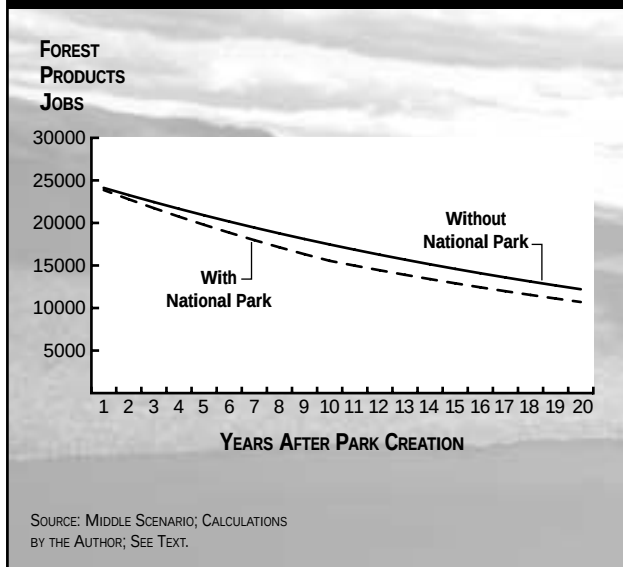


***The decline in local timber supply would directly affect the number of loggers that are employed in the area...Such potential forest products employment reductions... have to be understood in the context of declines in forest products employment that have been taking place in Maine for many years.***

<sup>102</sup>In this discussion “direct” job impacts refer to the initial impact on a particular industry. It does not include “indirect and induced” or “multiplier” impacts. The size of the “multiplier” used in calculating “indirect and induced” impacts is always controversial. We report only the more factual direct impacts.

<sup>103</sup>Park advocates have urged that federally funded retraining and other worker assistance, and economic development programs be put in place at the time the Park is created.

**FIGURE 10: PROJECTED MAINE FOREST PRODUCTS EMPLOYMENT WITH AND WITHOUT PROPOSED MAINE WOODS NATIONAL PARK**



products employment at mills. A significant portion of Maine's saw timber is exported unprocessed to Canada, other states, and other countries. It does not support mill employment in Maine. Similarly, a substantial portion of the pulp fiber used in Maine mills does not come from Maine but is imported from outside the state. The mill employment associated with that volume of fiber would not be affected by reductions in logging levels in Maine. In addition, the rate of import and export of fiber is not something that is fixed. It responds to relative supply and demand. When one source of supply ceases to be available, markets respond with price signals that lead to changes in wood fiber flows that tend to offset the supply shortage. Even in the production process there is room for substitutions between raw material, labor, and other inputs. When reductions in supply lead raw material prices to rise, more efficient use is made of the raw material, effectively stretching the remaining supply.<sup>104</sup> This type of economic adjustment, increased use of labor to enhance the amount of raw material recovered, has been important in stabilizing forest products employment in the Pacific Northwest. For all of these reasons, the reduction in forest products employment due to the Park would be much less than proportional to the reduction in harvest due to the Park.

Market-based adjustments to the slow change in Maine's timber supply caused by the creation of the Park would likely offset some or all of the negative impact that can be calculated if these adjustments are incorrectly ignored. However, in order to be conservative, the middle scenario assumes that none of these normal market adjustments take place and, contrary to what other studies have shown, that forest products employment would decline proportional to supply. This, in effect, exaggerates the impact of the proposed Maine Wood National Park on forest products employment.

This assumed decline in forest products employment associated with the Park must be put in the context of declining overall forest products employment. When this is done, the impact of the proposed Park is quite small compared to the impact of ongoing downward trends in forest products employment due to rising labor productivity and the need to reduce harvests to reach sustained yield levels, regardless of whether a National Park is created. (See Figure 10.)

The projected decline in forest products employment is likely to startle many citizens. Until the mid 1980s, forest products employment in Maine was relatively stable. However, that employment was supported by steadily increasing harvests. Given that such harvest increases are no longer likely and that, in fact, total cut in Maine may decline, there are no obvious forces that would offset the impact of rising labor productivity in forest products in the future.

<sup>104</sup>John B. Lindahl and Andrew J. Plantinga, *Input Use in Maine's Wood Products Industry* (Orono, ME: Maine Agricultural and Forest Experiment Station, University of Maine, Miscellaneous Report 407, 1998).

### C. A Billion Dollar Bite Out of a Six Billion Dollar Industry?

One of the more dramatic economic arguments that has been raised concerning the impact of the proposed Maine Woods National Park is that it would cause Maine's forest products industry to shrink significantly because about one-fifth of Maine's commercial forests would be included in the proposed Park. Since Maine's forest products industry is presented as the source, directly and indirectly, of about \$6 billion in economic value, the conclusion has been drawn that the proposed Park could result in a loss of as much as 1 billion dollars a year to the Maine economy. It is important to evaluate this possible impact.<sup>105</sup>

In 1998, all private economic activity in Maine generated labor earnings of about \$16 billion. If a Maine Woods National Park would cost Maine a billion dollars a year, that would mean 6.2 percent of all private earnings in the state could be lost. If the \$6 billion dollar estimate were correct, almost 40 percent of all private sector labor earnings in Maine would appear to be associated with forest products. In fact, this is not the case.

The summary facts about the forest products industry in Maine and the impact of the proposed Park on timber harvests are the following:

Forest products (logging, lumber and wood products mills, and pulp and paper) were directly the source of about \$1.2 billion dollars in earnings in Maine in 1998. This represented 4.2 percent of all dollars of personal income received by Maine residents. The forest products industry was the source of 3.4 percent of all jobs in Maine in 1998.<sup>106</sup>

The proposed Maine Woods National Park would reduce annual timber harvest in Maine by an estimated 63.4 million cubic feet out of a total harvest of 567.6 million cubic feet or about 11 percent (1990-1999 average levels of harvest).<sup>107</sup>

If one ignores both the extensive exports and imports of wood fiber in Maine and assumes that competitive markets completely fail to



***[T]he impact of the proposed Park is quite small compared to the impact of ongoing downward trends in forest products employment due to rising labor productivity and the need to reduce harvests to reach sustained yield levels, regardless of whether a National Park is created.***

<sup>105</sup>The annual economic impact of the forest industry in Maine is commonly cited as \$5 to \$6 billion. At least one report has claimed the total impact of direct, indirect, and induced effects of the forestry sector in Maine to be as high as \$8.5 billion. (David B. Field, *Some Facts about Maine's Forestry Sector* Orono, ME: University of Maine, Department of Forest Management, 1996.) The principal source for these estimates appears to be a report on *The Economic Importance of Maine's Forest* issued by the Northeastern Forest Alliance (NY, 1990, 1995). That report states that "an estimate for the total economic impact of sales and payroll generated is \$5.3 billion." (Adjusted for inflation, that figure would represent about \$7.8 billion in year 2000 dollars.) Public officials and business leaders have commonly used estimates of a similar size. For instance, Maine Conservation Commissioner Ronald Lovaglio was quoted as saying that the state's forest economy generated \$6 billion the previous year in a story on the proposed Maine Woods National Park in the *Lewiston Sun Journal* (November 20, 2000).

<sup>106</sup>Personal income and job statistics are from the US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System. In terms of Gross State Product that includes property income that does not necessarily accrue to Maine residents, the forest products industry generated about \$2.1 billion in economic value.

<sup>107</sup>The timber harvest impacts reported here were discussed earlier in this report.



***[T]he flow of dollars to Maine residents from forest products sectors would be directly reduced by less than 0.5 percent... spread over 10 or more years, rendering the annual impact an almost imperceptible five-one-hundredths of 1 percent per year.***

function, one could assume that the reduction in harvest associated with the establishment of the proposed Maine Woods National Park would lead to a proportional reduction in earnings in the forest products sectors. In that exaggerated case, the flow of dollars to Maine residents would be directly reduced by *less than 0.5 percent* or \$138 million dollars, not 1 billion dollars. In addition, this estimated reduction of one half of 1 percent would be spread over 10 or more years, rendering the annual impact an almost imperceptible *five-one-hundredths of 1 percent per year*. As discussed above, adjustments in markets and the flow of wood fiber would be expected to reduce the actual impact to well below even this level. In addition, of course, the proposed Park would lead to the creation of many new jobs and a broad array of new economic activity that would operate to offset the economic impact of any decline in the forest products industry associated with the Park.

If the forest products industry in Maine is the source of \$1.2 billion in total earnings, where does the \$6 billion figure come from? The answer is fairly straightforward. All economic organizations, especially industries, find it in their political interest to appear to be as important as possible to the larger community. Such importance translates into increased political influence.

There are several ways to increase the apparent importance of an industry. First, the relative size of an industry can be measured in many different ways: the percentage of total jobs, the percentage of personal income, the share of the total value of economic production, the dollar volume of sales, etc. This allows the industry to choose the type of measure by which it appears to be the largest. From an economic point of view, however, it is the question that one seeks to answer that should dictate the measure that is used, not the political implications of the size of the number.

The second, and more important, way to increase the apparent importance of an industry is to apply a “multiplier” to whatever measure of importance has been chosen. The logic behind such multipliers is that there are “indirect and induced” impacts associated with economic activity. A firm’s purchase of goods and services for its operation is an example of an “indirect” impact. The impact of workers spending their paychecks in the surrounding economy is an example of an “induced” impact. Although economic theory might support income multipliers in the range of 1 to 3 depending on the local circumstances, industries sometimes calculate multipliers of 6 or 10 or even as much as 20! With such multipliers, a single industry can be calculated to be the source of greatly exaggerated economic activity in a state. Unfortunately, such fanciful numbers contribute nothing to a meaningful understanding of the economy, whatever their value as political rhetoric.

This is not to argue that multipliers should never be used. However, in general, it is more appropriate to state job, income and other impacts in direct terms: the actual employment, payroll, sales value,

total profits, etc. associated with a particular economic activity. Those involve factual information, not the product of someone's subjective modeling assumptions.

There are situations where the use of multipliers or the information they contain can enhance the analysis. If, for instance, the jobs that are being created or lost are unusually well paid, the impact of those jobs on the rest of the economy will be greater than jobs with average or below average pay because the local spending they support is higher. Also, when there is considerable unemployment where the expansion of a particular economic activity could generate ripple effects that would put currently unemployed or under-employed people to work, taking into account those ripple effects makes some economic sense. Where, however, the labor force is largely fully employed and additional economic stimulation will simply lead people to move from one job to another and stimulate the in-migration of workers from other areas where they held other jobs, it is not clear that use of a multiplier accurately measures net economic gains.

There are other problems associated with the way multipliers are used to estimate local economic impacts. These impacts are typically based on computerized models (input-output and economic base models) that assume fixed relationships within the economy. Such static economic impact analysis, despite its popularity, usually seriously exaggerates both positive and negative impacts of new facilities or the shutdown of facilities. That is because it ignores the fact that we live in a market economy where economic actors and prices adjust to offset shocks to the system. By assuming away all of the flexibility that has made markets the economic system of choice, catastrophic consequences can be “forecast” when none are likely to be forthcoming.

Economic base analysis pictures a static, frozen, economy in which businesses and citizens sit by passive and helpless while horrible, permanent damage is done to them. Entrepreneurial and market adjustments are entirely absent from this type of model. For instance, when timber harvests from one source are reduced, it is assumed that mills just passively shut down and layoff workers. The possibility that logs might be pursued elsewhere by increasing harvests on other lands, by reducing exports, by increasing imports, by reducing waste, by using previously less attractive trees, etc. is ignored.

This type of analysis ignores all offsetting market adjustments. We are assumed to be an economy of unimaginative, passive folks who permanently give up at the first sign of economic difficulty. Such “economic” modeling may be useful for the public relations efforts of special interest groups but cannot provide useful information for the formulation of good public economic policy.

The important point here is that the estimated “economic impacts” flowing from typical input-output and economic base models do *not* represent an accurate forecast of what the local economy will

***[T]he estimated “economic impacts” flowing from typical input-output and economic base models do not represent an accurate forecast of what the local economy will actually experience.***



**FIGURE 11: VISITATION TRENDS TO NEW NATIONAL PARKS I**

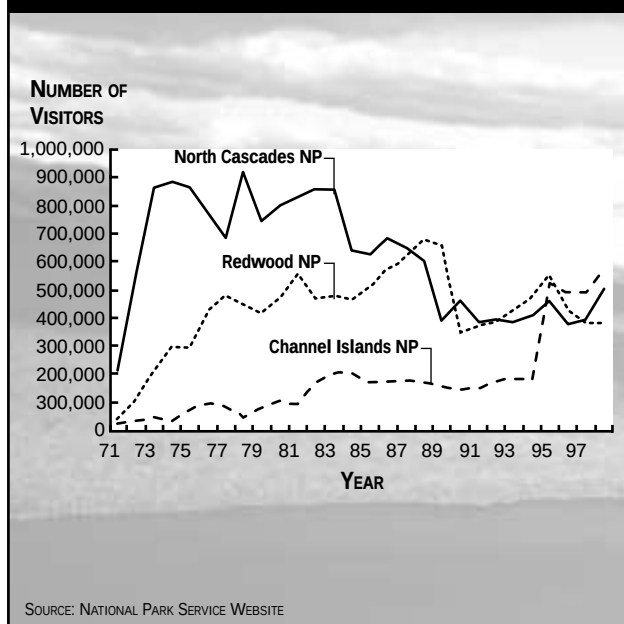
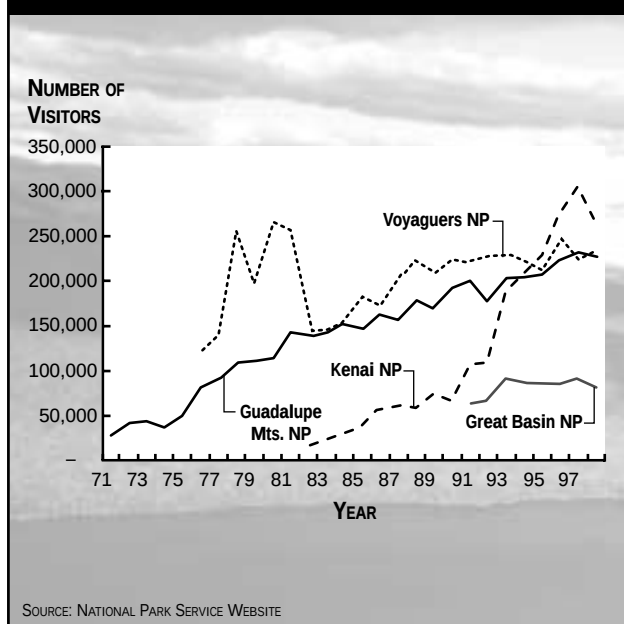


**FIGURE 12: VISITATION TRENDS TO NEW NATIONAL PARKS II**



actually experience. The very approach taken assures that the estimated “impacts” significantly exaggerate what the local economy will actually experience. This is not to say that it is impossible to do more sophisticated modeling of economic impacts that takes into account the dynamic market economy we live in. The problem is that this cannot be carried out with a pre-packaged computer program and the results will not be as dramatic and, therefore, as valuable for public relations purposes.

In hard-nosed, factual terms, the direct negative impacts of the proposed Maine Woods National Park on the local and statewide forest products industry would almost certainly be much smaller than has been generally assumed. In fact, the analysis below indicates that the net economic impact of a Maine Woods National Park on jobs and income would be expected to be positive.

#### D. National Park Visitation-Supported Employment Impacts

Although it is impossible to predict the exact number of new visitors to a Maine Woods National Park, data from existing Parks provide the basis for a reasonable estimate. Average annual visitation at the larger National Parks (47 of them) is about 1.3 million.<sup>108</sup> Visitation at Acadia National Park has been between 3 and 4 million per year over the last two decades. This count, however, includes non-recreational visits some of which are simply the local traffic of residents. There were 2.6 million recreational visits to Acadia in 1999 and 2.9 million total visits.<sup>109</sup> For the 22 large National Parks analyzed in an earlier section of this report, average annual visitation was 3.3 million; median annual visitation was 1.6 million.<sup>110</sup>

A review of visitor trends in National Parks created in recent decades also provides some guidance as to what visitation might be to the proposed Maine Woods National Park (see Figures 11 and 12). Table 6 lists seven of the most recently created National Parks for which there is a history of visitation, their size, and the visitation in 1999. Note that the Maine Woods National Park would be almost five times larger than the largest of the new parks listed.

In general there is a steady increase in visitation after a new National Park is established and then a leveling off. National Park visitation data are not always reliable and questions have been raised about the data on visitation to the North Cascades National Park (which includes visitation to the Lake Chelan and Ross Lake National Recreation Areas).<sup>111</sup> The declines in visitation in the North Cascade

<sup>108</sup> John Duffield et al., *Review of the National Park Service Money Generation Model*, a report prepared for Yellowstone National Park (Missoula, MT: Bioeconomics Inc., July 24, 1997), Table 4.1.

<sup>109</sup> National Park Service website, <http://www2.nature.nps.gov/stats/>.

<sup>110</sup> 1999 data, National Park Service website, reports on individual parks; Yellowstone and Grand Teton National Parks combined; data not available for Kings Canyon-Sequoia National Parks.

<sup>111</sup> John C. Miles, “Three National Parks of the Pacific Northwest,” Chapter 5 in Gary E. Machlis and Donald R. Field (eds), *National Parks and Rural Development: Practice and Policy in the United States* (Washington DC: Island Press, 2000), p. 96.

**TABLE 6: RECENT NATIONAL PARKS: SIZE AND VISITATION**

| National Park   | State      | Size (acres) | Date Established | Visitation 1999 |
|-----------------|------------|--------------|------------------|-----------------|
| Channel Islands | California | 250,000      | 1980             | 655,000         |
| Great Basin     | Nevada     | 77,000       | 1986             | 90,000          |
| Guadalupe Mts.  | Texas      | 86,000       | 1972             | 220,000         |
| Kenai Fjords    | Alaska     | 670,000      | 1982             | 291,000         |
| North Cascades  | Washington | 505,000      | 1968             | 406,000         |
| Redwood         | California | 110,000      | 1968             | 370,000         |
| Voyageurs       | Minnesota  | 218,000      | 1975             | 247,000         |
| Maine Woods     | Maine      | 3,200,000    |                  |                 |

Sources: National Park Service Website

National Park after 1984 may reflect over-estimates of visitation in the early years of the park's history.

A statistical analysis of the park characteristics that determine National Park visitation levels across the nation provides some more specific insight as to likely visitation levels to a Maine Woods National Park. A recent study of 64 natural areas managed by the National Park Service sought to determine the influence of the size of the park, the distance from population centers, the facilities available at the park, the activities the park supported, and the availability of alternative parks in the area on the level of visitation to the park. These statistical results were then applied to the characteristics of the proposed Maine Woods National Park. The result was a projection that the proposed Park would draw between 1 and 3 million visitor days depending upon how developed the overnight facilities would be in or adjacent to the Park.<sup>112</sup>

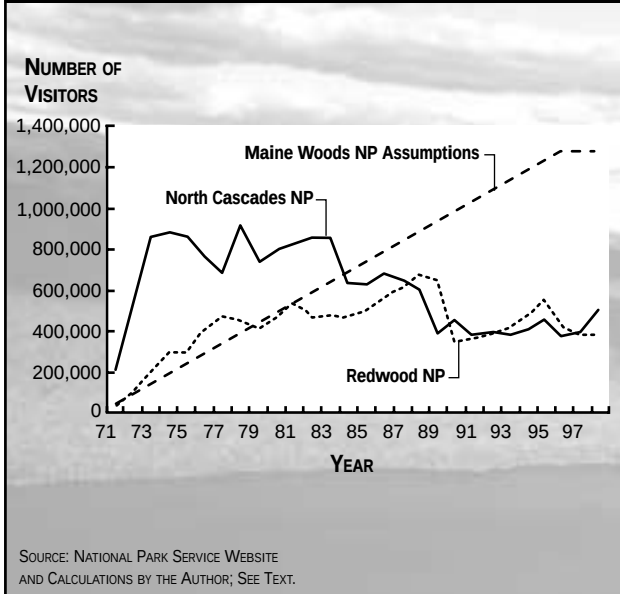
For the middle scenario in this study, we have assumed that over the next 20 years, visitation to the Maine Woods National Park area would systematically increase by about 1.3 million per year. This is in line with other studies that have estimated ultimate visitation to a Maine Woods National Park and well below the RESTORE high-end projection of 3 million visitors.<sup>113</sup> Given the size of the proposed Park, its relative proximity to population centers in the eastern US and Canada, the limited number of National Parks in the region, and the visitation that already takes place at Acadia National Park, this appears to be a reasonable estimate for a period 20 years after the Park's creation.

In Figure 13 the growth in the assumed growth in visitation to the proposed Maine Woods National Park in the 25 years after it is created is compared to the data on visitation to North Cascades National Park and Redwood National Park in the 25 years since they were created.

<sup>112</sup>Benjamin C. Sigman, "The Role of Park Attributes in National Park Visitation Rates: An Application to the Proposed Maine Woods National Park and Preserve" (Senior Thesis, Colby College, Economics Department, Waterville, ME, 1999), p. 38.

<sup>113</sup>Michael J. Kellett and James A. St. Pierre, *Gateway to a Healthy Economy: The Proposed Maine Woods National Park and Preserve and the Future of the Moosehead Region of Maine* (Concord, MA and Augusta, ME: RESTORE: The North Woods, 1996), p. 8; and Benjamin C. Sigman, 1999.

**FIGURE 13: VISITATION AT NORTH CASCADES, REDWOOD & PROPOSED MAINE WOODS NATIONAL PARKS**



In comparing the projected visitation to the proposed Maine Woods National Park with the experience at other relatively new National Parks, recall that North Cascades National Park has about 684,000 acres (including the National Recreation Areas) and Redwood National Park about 110,000 acres while the objective of the proposed Maine Woods National Park (not including Baxter State Park) would be to acquire about 3.2 million acres. Also recall that visitation to Acadia National Park has run between 2.5 and 3 million in recent years.

The direct employment impacts associated with this level of visitation were estimated using the National Park Service's "Money Generation Model 2."<sup>114</sup> The coefficients for a "rural park" were used given the rural character of the area around the proposed Park. This is a very conservative estimate. A 1997 study of the impact of tourism on Franklin County estimated that for every 140 overnight visitors, 1 full-time equivalent job was created. In the employment impact estimates for the proposed Park, we are assuming an employment impact only one-sixth of that.<sup>115</sup>

At the end of 20 years, when visitation is assumed to be 1.3 million, an estimated 1,460 jobs would be directly associated with those visitors. That employment would grow gradually at a rate of about 75 additional jobs a year over the 20-year period. The 75 added jobs each year represent substantially less than one-tenth of 1 percent of current employment in the area immediately adjacent to the proposed Park. The total increase over the 20 years would be less than 1 percent of the current total employment in all of the counties where the proposed Park would be located. Clearly this would not be a disruptive "boom."

### E. Amenity-Supported Employment Impacts

As discussed earlier, areas around National Parks, in general, have shown levels of economic vitality that cannot be entirely explained by visitation rates. This has been true of well-established National Parks as well as newly established National Parks. Protected natural landscapes tend to draw residents and business owners who appreciate the open space, outdoor recreation opportunities, wildlife, and scenic beauty associated with those natural landscapes. This has already been taking place elsewhere in New England, including along Maine's coast, as well as in many other rural areas in the nation. See the discussion in Chapter 3, Section F, above. Our middle scenario assumes that annual employment growth would be 1 percent higher in the area immediately adjacent to the southern border of the proposed Park because of this amenity-supported economic development.<sup>116</sup> We estimate that employment in this area

<sup>114</sup> <http://www.prr.msu.edu/MGM2/MGM2Shortform.xls>.

<sup>115</sup> Davidson-Peterson Associates, *The Economic Impact of Expenditures by Tourists on Franklin County, Calendar Year 1996*, prepared for the Androscoggin Valley Council of Governments (Auburn, ME, March 1997). FTE jobs were 1,949 (p. ii) and person visits were 273,962, for a ratio of 140.6 visits per job. We have estimated 1,457 jobs associated with 1.6 million visitors.

is currently about 16,500. These jobs in the area immediately adjacent to the proposed Park represent only about 10 percent of the total employment in the entire 4 county area where the proposed Park would be located.

This amenity-supported job growth is a conservative assumption. It is based on the above average rate of job growth in large National Park counties (1 to 2 percent per year faster) discussed earlier and the fact that the Acadia National Park area has experienced job growth rates that are 5 times those in Piscataquis County (2.5 v. 0.5 percent).<sup>117</sup> (See Figures 14 and 15.) But we have not applied the additional growth to the entire county, only to a small part of it.

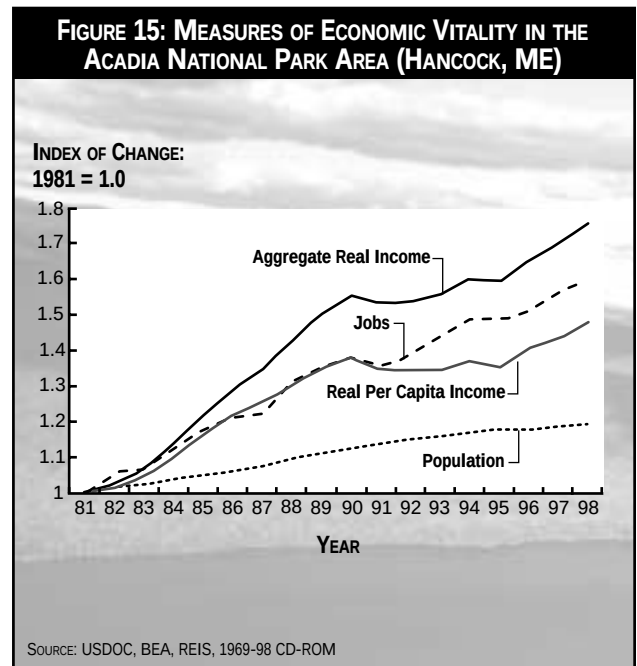
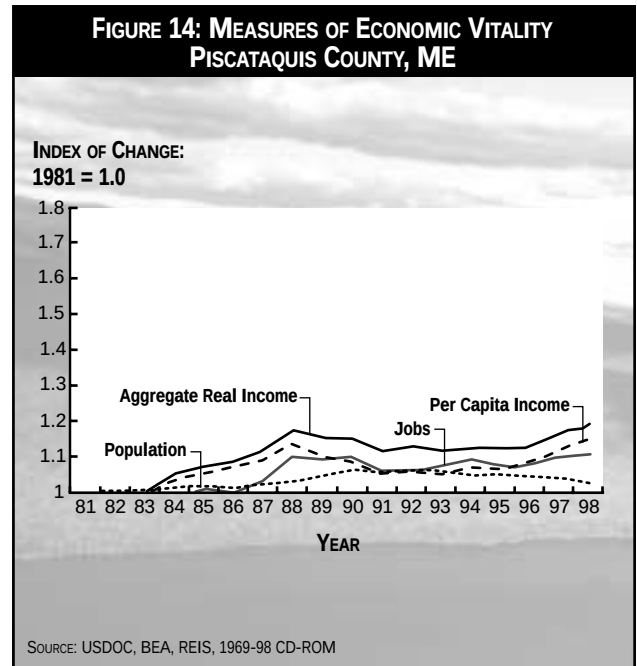
A comparison of the recent economic history of the Acadia National Park area (Hancock County) and Piscataquis County where the proposed Maine Woods National Park would be centered provides a dramatic indication of the impact that recognized natural amenities can have on an area's economic development. Parts of Hancock County lie only about 25 miles from southern Piscataquis County. The towns of Ellsworth and Dover-Foxcroft are only 63 miles apart by road. Most of Hancock County's population is concentrated along its rugged coastline. Of course, Acadia National Park is not the source of all of the economic vitality in Hancock County, but it is an important component.<sup>118</sup> Indeed, if that county had rejected an economic development trajectory built around its attractive natural landscapes and had instead tried to support itself entirely on the basis of commercial fishing, farming and forestry, its recent economic history would almost certainly be as troubling as that of Piscataquis County. Figures 14 and 15 compare the actual economic experiences of the two areas over the last 2 decades.

One of the reasons that the Maine Woods National Park could be expected to have a positive impact on the local economies is that almost all of the land surrounding the proposed Park is privately owned and relatively accessible. For many of the large Western National Parks, the areas surrounding the parks were publicly owned and very mountainous. This meant that economic development associated with the National Parks had to take place at distant

<sup>116</sup>In order to focus on the areas of most likely community and rural impacts, we have emphasized in this analysis the following locations: Millinocket and Lincoln in the east, Greenville and Dover-Foxcroft in the south, and Jackman and northeast Somerset County in the west. However, the positive impact of the Park on employment and other economic measures certainly would extend beyond those areas.

<sup>117</sup>1981-1998, US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, 1969-1998 CD-ROM.

<sup>118</sup>The Jackson Laboratory, a biotech research facility, is one of the county's largest employers. Its presence in Bar Harbor cannot be attributed to the existence of the National Park but is likely tied to the amenities that led to the Park's creation. High amenity areas attract many high technology firms and research facilities. See Richard Florida, *Competing in the Age of Talent: Environment, Amenities, and the New Economy*, report prepared for the R. K. Mellon Foundation, Heinz Endowments, and Sustainable Pittsburgh (Carnegie Mellon University, H. John Heinz III School of Public Policy and Management, 2000). The Hinckley Yacht building facility in the area is also associated with the same amenities that led to the Park's creation, not necessarily with the Park itself. Both of these have expanded employment in Hancock County.





locations or inside the Parks themselves.<sup>119</sup> The local economic impact, as substantial as it ultimately was, was muted by the lack of private, inhabitable, land adjacent to the National Park. That would not be the case with the proposed Maine Woods National Park, where a number of nearby gateway towns would be suitable for compatible economic development.

The impact of an additional 1 percent annual growth in employment on jobs in the area immediately around the proposed Maine Woods National Park in northern Maine is projected to average about 165 new jobs per year in the early years, rising to an annual addition of 200 new jobs 20 years later. That represents about a one-tenth of 1 percent annual increase in total employment in the 4 counties where the proposed Park would be located even though it is 1 percent of the jobs in the area immediately adjacent to the proposed Park. The cumulative impact would be about 3,600 new jobs created over 20 years directly because of the Park. This 1 percent growth rate would raise local employment a total of 22 percent over those two decades. Added to the 165,000 jobs currently found in these counties this would only be about a total of a 2 percent increase over 20 years. Measured either way, this would not represent a disruptive boom.

Although the results reported on above do not extend the economic expansion beyond the first 20 years, the experience around Acadia and other National Parks indicates that they can be expected to be a source of economic vitality far beyond the first couple of decades after their establishment. The 3,600 jobs associated with amenity-supported in-migration can be compared to the 1,500 Park visitor-related jobs. Only about a quarter of the jobs associated with the proposed Park would be “tourist” jobs. The others would be associated with the new businesses drawn to the area and the normal mix of businesses that support households in any location.

While it is probably an overestimation, in the middle scenario described above, the proposed Maine Woods National Park could lead to a peak direct reduction of almost 2,000 forest industry jobs.<sup>120</sup> At the same time, visitor and amenity direct jobs would slowly rise reaching 1,500 additional tourist and 3,600 additional direct amenity-supported jobs at the end of the 20-year period of analysis.<sup>121</sup> So the impact of creating a Maine Woods National Park

<sup>119</sup> John C. Miles, “Three National Parks of the Pacific Northwest,” Chapter 5 in Gary E. Machlis and Donald R. Field (eds), *National Parks and Rural Development: Practice and Policy in the United States* (Washington DC: Island Press, 2000).

<sup>120</sup> Our analysis indicates that there would be a decline in forest products job losses in the second decade because some of the jobs initially lost due to the creation of the Park would have been lost later anyway due to technological changes and reductions in harvest to bring it within sustained yield. By the end of the 20 year period the forest products job loss due to the Park is estimated to be about 1,500.

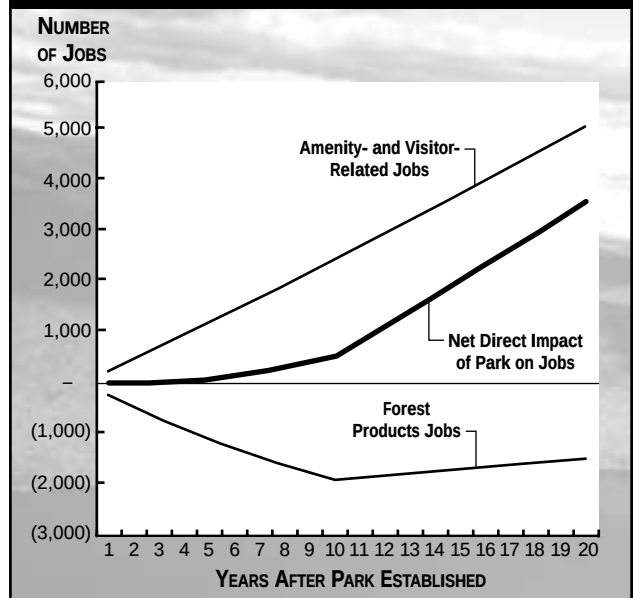
<sup>121</sup> There are many, many miles of timber roads, trails, and yards as well as many square miles of clearcut forest throughout the proposed Park and even more will be created before a Park is actually created and the land purchased. Assumedly a National Park would seek to restore these lands. Such an environmental restoration effort would create jobs that were not tied to tourism or amenity supported settlement. Such forest restoration would make use of much of the same equipment and skills currently used in logging. These types of jobs are not included in the employment estimates used in this report.

would be a steady but modest increase in total employment, with a net gain of about 3,600 jobs. This is illustrated in Figure 16. Between 1970 and 1998 the 20-year job growth in the 4 “Maine Woods National Park counties” has averaged about 35,000. The 3,600 jobs we are projecting represent only about 10 percent of that historical pattern. In that sense it is a quite modest impact, not rapid growth or change.

These modest but positive employment impacts associated with the creation of the Maine Woods National Park are about the same size as those that can be projected from the recent University of Maine study of the impact of conservation lands on net in-migration and employment in the Northern Forest Region (which includes Maine). As reported above that study found that as the percentage of a county’s land base that was managed as public conservation lands increased, net in-migration during the 1990s increased and, because of the higher population, employment also increased. A 10 percent increase in the percentage of the county in public conservation land led employment and net in-migration to both increase by about 1 percent during the 8 year period of the study. The Maine Woods National Park would increase the percentage of the county’s land base that was public conservation lands by 68, 21, and 26 percent in Piscataquis, Penobscot, and Somerset Counties respectively. This would increase employment by about 3,200 over 8 years or about 4,000 over 10 years.<sup>122</sup>

Of course, the quantity of jobs gained and lost does not address the type of jobs or how much they pay. As pointed out earlier, logging pays below average wages. Wood products mill employment pays about average wages. Pulp and paper manufacturing pays above average wages. However, it is quite possible that the proposed Park would have minimal impact on pulp and paper jobs despite reduced harvests, because the supply of fiber to Maine’s paper mills is complex and involves considerable imports of raw material. If the jobs lost pay average or below average wages and the new jobs are about average in pay, the impact would be neutral in terms of average pay.

**FIGURE 16: NET DIRECT IMPACT OF PROPOSED MAINE WOODS NATIONAL PARK ON EMPLOYMENT: MIDDLE SCENARIO**



<sup>122</sup>David Lewis and Andrew J. Plantinga, *Public Conservation Lands and Economic Growth in the Northern Forest Region* (Orono ME: Maine Agricultural and Forest Experiment Station, Miscellaneous Publication 748, 2001). Our calculation is based on the *indirect* employment effects of increased in-migration. The original study found no significant *direct* employment effects of conservation land and also found that when the direct and indirect impacts on jobs were combined, the impact, while positive, was not statistically different from zero. Also, as discussed above, the study found no significant employment or in-migration effects from more restrictive conservation lands such as National Parks. In the authors’ summary of their results, they say “we found that conservation lands had no systematic effect on employment growth over the 1990 to 1997 period.” The also say “...we find no evidence that conservation lands should be viewed as a tool for promoting job growth in rural communities.” In the calculation we have done, we have used only the indirect effect of conservation lands on jobs through increased in-migration. In that sense we are selectively using only part of the study’s results for illustrative purposes, namely to show how modest the impact is we are projecting and how such modest impacts can have significant cumulative effects. We agree that the impacts they found on in-migration and, indirectly, on employment are modest in size. The judgment as to whether or not they could represent a significant contribution to local economic development we leave to the reader.

**FIGURE 17: REAL PER CAPITA INCOME IN ACADIA & PROPOSED MAINE WOODS NATIONAL PARKS COUNTIES: 1969-1998**

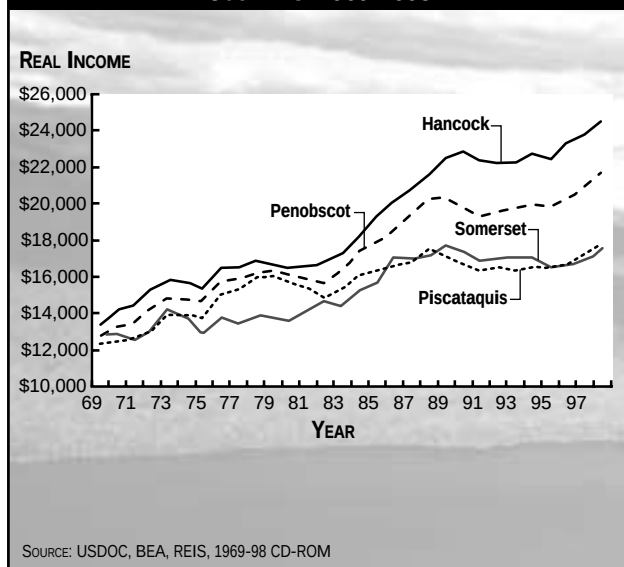
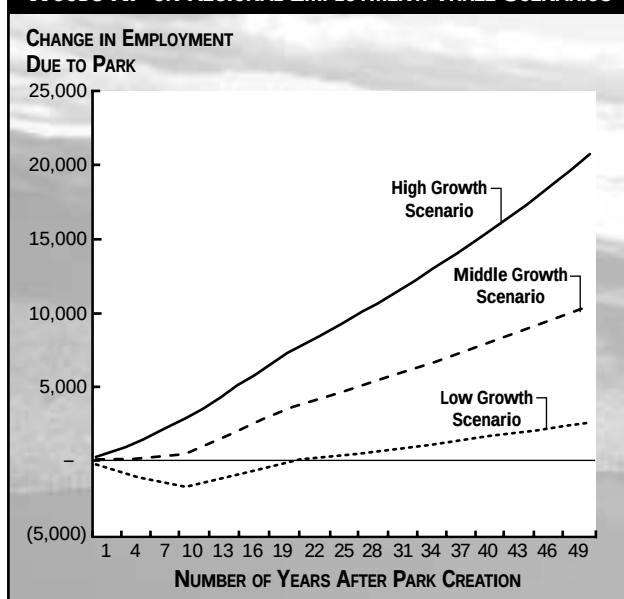


**FIGURE 18: NET DIRECT IMPACT OF THE PROPOSED MAINE WOODS NP ON REGIONAL EMPLOYMENT: THREE SCENARIOS**



Recall that in our modeling most of the new jobs are not “tourist” jobs. For that reason it should not be assumed that they would have well below average pay associated with them.

Often there is concern that reliance on the types of jobs associated with a National Park must lead to lower average income. However, if one compares the average incomes in the Acadia National Park area (Hancock County) with those in the proposed Maine Woods National Park area, this fear is not confirmed. Although 30 years ago average incomes in the two areas were very similar, average income in the Acadia area is now much higher. In 1969 average income was about \$13,000 in both areas. In 1998 average income in the Acadia area was about \$7,000 above that in Piscataquis and Somerset Counties, \$24,500 versus \$17,500. Pay in northern Penobscot County was probably similar to that in Piscataquis but the average across the entire county is skewed by the presence of the Bangor metropolitan area.<sup>123</sup> These differences in average income are shown in Figure 17. If this comparison is made, instead, in terms of average annual pay per job, the results are similar: Hancock County pay is higher than that in the non-metropolitan areas around the proposed Maine Woods National Park; 10 percent higher, for example, than in Piscataquis County.

Clearly the presence of Acadia National Park and the new residents, businesses, and tourists associated with it have not damaged average incomes in Hancock County compared to the areas in northern Maine that have continued to focus on the “working forest” as their primary source of economic vitality. Indeed, quite the opposite is true. Had Hancock County continued to rely exclusively on its traditional natural resource industries, its economic performance likely would have lagged behind other prosperous regions, as has Piscataquis County.

The other National Park impact scenarios that were analyzed for this study bracket the net employment impacts we have reported thus far. They are summarized in Figure 18 that extends the projected net employment impacts of the proposed Maine Woods National Park beyond the initial 20 year period to 5 decades. During the first 2 decades, the low growth scenario shows a net negative impact on employment until the very end of the period. At its peak 10 years into the creation of the Park, the job loss is about 1,800 or about 1 percent of total employment in the 4 affected counties and two-tenths of 1 percent of Maine employment. The high growth scenario, as would be expected, shows a much higher positive impact on employment, about 7,300 jobs, than the middle scenario on which we have concentrated. Even this high impact is well below the upper end of RESTORE’s estimate of the employment impacts of the Park, 20,000 additional jobs. That level of employment impact, however, is reached in our high growth scenario at the end of 50 years.

<sup>123</sup> Average pay and income are usually significantly higher in metropolitan areas than in rural areas.

## F. National Park Fees and Public Access

Related to the discussion of the economic impact of visitation to a new National Park there are concerns regarding the cost of public access for recreation. This section examines public access fees at other National Parks in an effort to put the Maine Woods National Park into the proper context.

The historical access that the public has had to the privately owned timberlands of northern Maine is based on informal acquiescence by the industrial forestland owners. This has already begun to change as more private owners insist that recreation users pay for access to many of those lands. Fees are collected from those who wish to use private roads and enjoy the recreational opportunities on private lands. As these lands shift from the hands of timber processing corporations to land investment companies, even more charges can be expected. The Maine Woods, especially those areas adjacent to rivers and lakes have value as second home, “get away” sites, including condominium and managed second home communities. Part of what people who buy such home sites are seeking is isolation and solitude or at least control over with whom they have to share “their” lake, river, or woods. Even when development rights are purchased from the landowner by the public or private land trusts, public recreational use can be limited and fees for access charged.

The proposed Maine Woods National Park presents a different set of access issues. Some National Parks charge fees for access to developed facilities such as roads and campgrounds. On the other hand, Great Smoky Mountains National Park in Tennessee and North Carolina, one of the largest National Parks in the East, do not charge entry fees. Millions of visitors make use of its 270 miles of roads at no cost. About 20 of the 56 National Parks, including several created over the last 2 decades, do not have any admission charge.<sup>124</sup> Most of Acadia National Park is open to free access, but there is a charge of \$10 per vehicle for access to the popular Ocean Drive. For \$20, however, an annual pass is available that provides unlimited access for a vehicle and all passengers for a year. One family visit to the movies could cost more. Some of the basic access issues for a Maine Woods National Park could be decided in the negotiations that develop the authorizing legislation that creates the Park. Advocates of the proposed Park have urged that there be no access fees.

The Acadia National Park access fee is not unusual in the National Park system. Many other National Parks typically charge \$4 to \$10 per car. The median charge is \$5 and the mean \$6.26 per car. With 3 people in the car, that would be about \$2 per person.

*Often there is concern that reliance on the types of jobs associated with a National Park must lead to lower average income. However, if one compares the average incomes in the Acadia National Park area...with those in the proposed Maine Woods National Park area, this fear is not confirmed.*



<sup>124</sup>In the year 2000 these included Biscayne, Channel Islands, Carlsbad Caverns, Dry Tortugas, Gates of the Arctic, Glacier Bay, Great Basin, Great Smoky Mountains, Guadalupe Mountains, Hot Springs, Isle Royale, Katmai, Kobuk Valley, Lake Clark, North Cascades, Redwood, Virgin Islands, Voyageurs, Wind Cave, Wrangell-St. Elias.

**TABLE 7: COSTS PER VISITOR (ASSUMING 3 PERSONS PER CAR)**

| <b>Cost Basis</b> | <b>Acadia National Park</b> | <b>North Maine Woods Inc.<br/>Maine Resident</b> | <b>North Maine Woods Inc.<br/>Non-Resident</b> |
|-------------------|-----------------------------|--------------------------------------------------|------------------------------------------------|
| I Day Pass        | \$3.33                      | \$4.00                                           | \$7.00                                         |
| 3 Day/Week Pass   | \$3.33                      | \$12.00                                          | \$21.00                                        |
| Annual Pass       | \$6.67                      | \$40.00                                          | Not Available                                  |

Source: Acadia National Park and North Maine Woods Inc.

In most cases, the Acadia National Park access fee is lower than the fees charged by North Maine Woods, Inc., a private organization that manages recreation on more than 3 million acres of timberlands in northwestern Maine. North Maine Woods charges \$4 per person for a single day and an additional camping charge of \$6 per person per night. In fact, the North Maine Woods camping fees have been increased 20 percent just in the last year. A season pass, good only for a single season (e.g. summer or winter) is available for \$25 per person and an annual pass is available for \$40 per person. For a typical car carrying 3 visitors, what the North Maine Woods charges for anything more than a one day visit could be 4 to 6 times higher than the charges at Acadia National Park.

A comparison of access fees at National Parks in Maine and elsewhere around the nation suggests that the charges associated with the proposed Maine Woods National Park would likely be substantially lower than those now being charged by many large private landowners in the Maine woods.

In addition, the Maine Woods National Park and Preserve proposal recognizes that reasonable limits on access and use may be necessary for resource protection in some areas. However, Park advocates urge that appropriate areas be designated as National Preserve where hunting and snowmobiling would be allowed.

Restrictions on public use of private lands in the Maine Woods are already being imposed by many landowners. That trend is likely to expand. In addition, many of the most attractive areas may be put off limits permanently to public use by private development. The restrictions on use that would be associated with a National Park have to be compared to the restrictions that will continue to develop under private ownership.

### **G. Are the Maine Woods Different?**

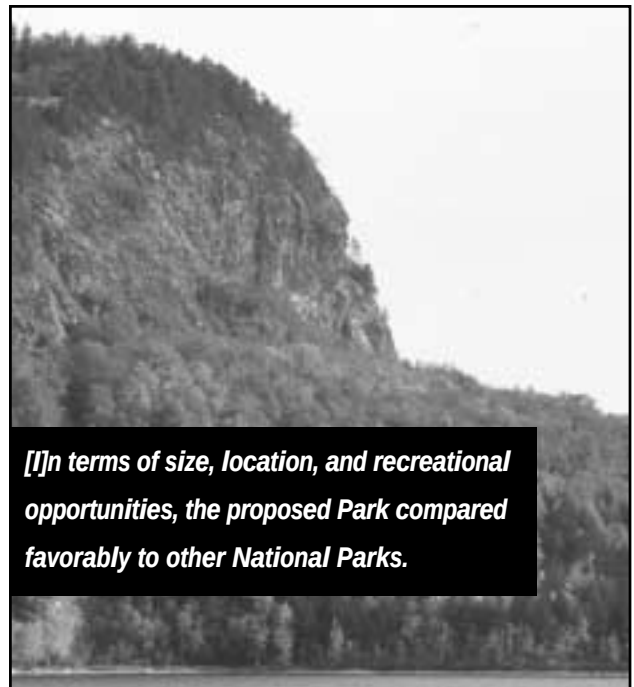
Some readers may be uneasy about drawing on the experience of other National Park counties, including Maine's Hancock County, to make projections about what the economic impact of a Maine Woods National Park might be. It is always possible that the location and character of the area proposed for the Maine Woods National Park is fundamentally different from other National Park areas. A detailed analysis of National Park characteristics and how the proposed Maine Woods National Park fits into those patterns lay beyond the scope of this report, but as reported above

such an analysis was recently carried out at Maine's Colby College.<sup>125</sup> It found that in terms of size, location, and recreational opportunities, the proposed Park compared favorably to other National Parks. This issue would certainly be an important part of a full-scale feasibility study for the proposed Park. It should be pointed out that some of the typical claims about the negative uniqueness of the Maine Woods are not entirely plausible. Some have suggested, for instance, that most of the National Park areas where there are signs of amenity-supported economic vitality and relatively high visitation rates are found in the warm and sunny climates. That simply is not true. One only needs to think about Yellowstone, Glacier, Rocky Mountain, and North Cascades National Parks. Even many of those Parks that are found further south are in mountainous or high desert areas that are quite cold in the winter. Consider Yosemite, Great Smokey Mountains, Kings Canyon, and Grand Canyon National Parks. The amenity-supported economic vitality one finds in the Mountain West stretches north to the Canadian border and hundreds of miles beyond into British Columbia, Alberta, and Alaska.

Northern Maine is also often presented as a very isolated area that is hard for people to reach. But Bangor is less than 300 miles from the Boston, Montreal, and Quebec metropolitan areas and less than 500 miles from the New York metropolitan area. Yellowstone and Glacier National Parks are much more isolated from major metropolitan areas both in terms of miles and in terms of mountain passes to cross. In addition, the major metropolitan areas are much smaller than those within a day's drive of the proposed Maine Woods National Park.

Consider, for instance, the Bozeman and Kalispell areas in Western Montana. Bozeman is in Gallatin County adjacent to Yellowstone National Park and Kalispell is in Flathead County adjacent to Glacier National Park. Both are in northern mountainous country exposed to long, cold winters. The closest major metropolitan areas are Seattle, Portland, Salt Lake City, and Denver. Kalispell is about 700 miles from Seattle, Portland, or Salt Lake City and over 1,000 miles from Denver. Bozeman is about 700 miles from Seattle and Denver, 850 miles from Portland, and about 450 miles from Salt Lake City. The largest of these metropolitan areas, Seattle, is half the size of the Boston area and a sixth the size of the New York area, and much further away than Bangor is from these northeast major metropolitan areas.

Despite their isolation and cold northern climates, the Bozeman and Kalispell areas have seen impressive economic vitality for several decades. The same has been true for many other counties in the Northern Rockies. What were once stagnant or declin-



*[I]n terms of size, location, and recreational opportunities, the proposed Park compared favorably to other National Parks.*

<sup>125</sup>Benjamin C. Sigman, "The Role of Park Attributes in National Park Visitation Rates: An Application to the Proposed Maine Woods National Park and Preserve" (Senior Thesis, Colby College, Economics Department, Waterville, ME, 1999).

---

ing lumber, mining, or farming towns now exhibit sustained economic strength and vigor.<sup>126</sup>

The residents of most rural areas pride themselves on their personal ability to deal with the isolation, extremes of climate, and particular local wildlife and insect pests. But cold climates in winter and biting insects in spring and summer are not limited to the Maine Woods. They are found across much of North America including many of the areas demonstrating sustained, amenity-supported, economic vitality.

The fact is that until an area begins to gain new residents through in-migration, it is often hard to project exactly what the set of amenities is that is holding and drawing residents and economic activity. What previously had been considered a curse—small towns, low population density, rugged terrain, snowfall, many lakes and rivers, high summer temperatures—now is seen (by some, at least,) as a blessing. Maine's coast was not always considered the amenity it is now. Not many decades ago it was a working landscape that was in decline. Communities concerned about economically stabilizing their communities have little choice but to play to their strengths and uniqueness. In other areas of the county, including parts of Maine, as natural resource industries have declined as sources of employment and income, high quality natural landscapes and social environments have successfully supported the development of alternative economic bases and the maintenance of economic vitality. The possibility that the proposed Maine Woods National Park could do the same for northern Maine should not be dismissed based on casual characterizations of the region's perceived negative qualities.

---

<sup>126</sup>US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System. For various analyses of the economic vitality of the Northern Rockies see *Rural Development Perspectives* v.14, n.2 (August 1999) for a series of articles on amenity supported economic development in the West. USDA, Economic Research Service.

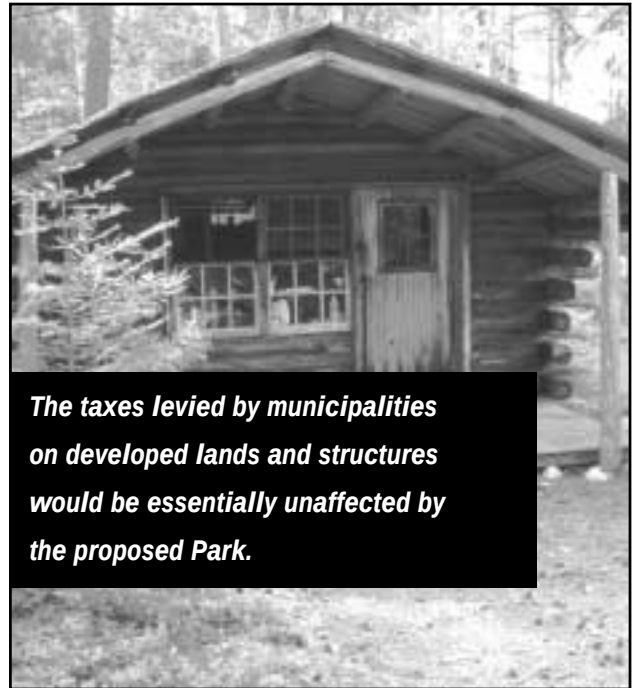
# V. THE IMPACT OF THE PROPOSED MAINE WOODS NATIONAL PARK ON STATE AND MUNICIPAL TAX REVENUES

## A Introduction and Summary

State, county, and local governments cannot tax federal lands but federal ownership does not completely eliminate the need for the public services that state, county, and local governments provide. Therefore, Congress has authorized annual payments to governments in areas where there is federal land ownership.<sup>127</sup> In addition, Congress has authorized transition payments for many years following the creation of new National Parks. These payments are intended to smooth the local fiscal transition.

State and local taxation of lands in the proposed Maine Woods National Park would be replaced with federal payments in lieu of taxes (PILT) and supplementary transition payments. Moreover, economic vitality such as that found in communities close to existing National Parks, would also be expected to expand the local tax base in ways that tend to offset lost property taxes. This section analyzes the net impact of these changes on state and local government revenues. It should be noted that the focus here is on state and local government revenues, not on expenditures or demand for services.

The boundaries of the proposed Maine Woods National Park have been drawn to exclude all but a small number of permanent residential and commercial structures and facilities and lands that are part of municipalities.<sup>128</sup> Because of that, the taxes currently being paid on forestlands within the proposed Park are relatively low property taxes under Maine's Tree Growth Tax Law.<sup>129</sup> The

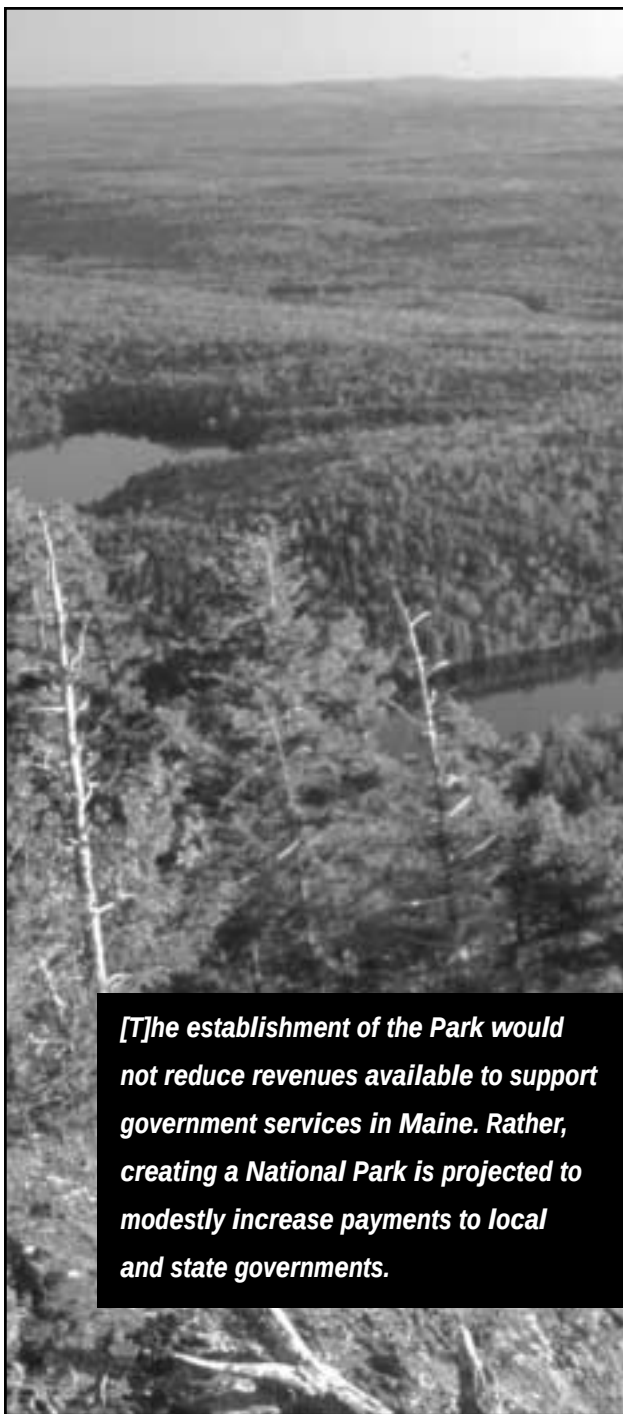


***The taxes levied by municipalities on developed lands and structures would be essentially unaffected by the proposed Park.***

<sup>127</sup>Payments in Lieu of Taxes (PILT) Act of 1976 as amended. 31 U.S.C. § 6901-6907.

<sup>128</sup>RESTORE: The North Woods, *Maine Woods Proposed National Park & Preserve: A Vision of What Could Be* (Concord, MA, 1994); RESTORE: The North Woods, *America's Next Great National Park: Preserving Our Maine Woods Legacy* (Augusta, ME and Concord, MA, 1999), p. 17.

<sup>129</sup>In the calculations summarized below, it was assumed that the backcountry lands that would be incorporated into the Park should be evaluated on the basis of tree growth taxation. That appears to be the only reasonable approach given that the Park was designed to include only undeveloped forestlands. Indeed, nearly all of the forestlands within the proposed Maine Woods National Park are enrolled in the Maine Tree Growth Tax program that authorizes very low assessments and, therefore, very low annual property tax payments. Within the unorganized townships, of course, there are lands valued much more highly than tree growth lands. In the unorganized townships of the three counties primarily affected by the Park, about 25 percent of land values are associated with 2 percent of the taxable land. In Piscataquis County about 25 percent of the taxable land value is associated with one percent of the taxable land. In that county, that "other land" had a taxable value of almost \$5,000 per acre as compared to the \$160 per acre for tree growth land. The calculations summarized below assume that most of this higher valued land is not located within the proposed Park boundaries but is associated with human settlement, commercial development, and recreation sites outside the Park. If these higher valued lands were uniformly distributed across the proposed Park, the federal PILT payments would be somewhat smaller relative to current tax payments, although the supplemental payments would increase proportionately since they are designed to completely offset lost tax revenues.



*[T]he establishment of the Park would not reduce revenues available to support government services in Maine. Rather, creating a National Park is projected to modestly increase payments to local and state governments.*

taxes levied by municipalities<sup>130</sup> on developed lands and structures would be essentially unaffected by the proposed Park.

During the first decade or so of a new National Park, the federal payments to the state and local governments would be higher than the tax revenues currently collected from those lands. That is, because the supplemental transition payments (which, for instance, ran for 12 years after the establishment of Acadia National Park) are based on the previous state and local taxes collected on that land. During that time period and indefinitely into the future, federal PILT payments would also be made. Under existing law, the sum of these would be higher than the revenues from current taxes.

After the transition period authorized by the legislation creating a Maine Woods National Park, federal PILT payments would continue to flow to local and state governments. Under current law, authorized PILT payments to local and state governments would, in general, be higher than current taxes and would automatically increase with inflation. As a result, the establishment of the Park would not reduce revenues available to support government services in Maine. Rather, creating a National Park is projected to modestly increase payments to local and state governments. In addition, as discussed above, it is expected that the economic vitality of the area surrounding the proposed National Park would be enhanced by the establishment of the Park. This would supplement further the revenues available to support public services.

#### **B. Federal Payment in Lieu of Taxes (PILT) and Other Local Government Support Programs**

For Fiscal Year 1999, PILT payments for National Park lands were authorized by the US Congress at \$1.65 per acre with a maximum of \$2.2 million per county. These limits are to be increased at the Consumer Price Index (CPI) to protect their real purchasing power. For counties such as Piscataquis that have relatively small populations, Congress has put a limit on how much PILT money the county can receive to prevent small counties with substantial federal lands from receiving an unfair financial “windfall.” The limit on PILT payments is calculated by multiplying the population by \$63, a figure that is also increased annually at the CPI. If the proposed Maine Woods National Park were in place as it has been proposed, Piscataquis County would be eligible in FY 2001 for about \$1.2 million.

In addition to these federal PILT payment, the federal government also makes supplemental payments to local governments during the first decades of a new National Park’s existence. Those payments are based on the property taxes that were collected on the same lands the year before the National Park was established. The combination of these two assures that the payments during the

<sup>130</sup>As noted earlier, the Maine Woods National Park proposal envisions that lands would be acquired on a willing-seller basis. Private owners could choose to keep their property indefinitely.

first decade or more of a new National Park exceed the previous property tax payments.

We have estimated the impact of replacing the property tax revenues currently collected from the timberlands within the proposed Maine Woods National Park with federal PILT and supplemental National Park payments. As previously noted, the tentative boundaries of the proposed park were drawn to exclude areas of significant human settlement and commercial and industrial facilities. Therefore the primary taxable value included within the proposed Park is that of timberland taxed under the Maine Tree Growth Tax law. That tax is the basis for the following comparison with the federal PILT and supplemental payment programs.

Even though the law authorizes payments at the levels mentioned above, Congress, in its efforts to balance the federal budget, in recent years has not fully funded these PILT payments. Although total PILT payments to local governments have been increasing, the actual funding levels have only been at approximately 50 percent of the nominally authorized levels. With the federal budget now balanced and running a surplus, there will be pressure on Congress to fully fund PILT payments. Because of the uncertainty about the level of future funding of the PILT program, in the following analysis we will use both 100 and 50 percent levels of funding.

### **C. The Unorganized Townships Potentially Affected by the Proposed Maine Woods National Park**

The acreage of unorganized townships that would be included in the proposed Maine Woods National Park was estimated by visually studying how the Park boundary divided townships on the periphery. The portions of these boundary townships within the proposed Park were combined with the townships that are completely within the proposed Park. About 60 percent of the Park would lie within Piscataquis County, 23 percent in Somerset County, 16 percent in Penobscot County, and less than 1 percent in Aroostook County. About two-thirds of Piscataquis County would lie in the Park. Approximately one-fifth and one-quarter of Penobscot and Somerset Counties, respectively, would lie within the Park. Less than one-half of 1 percent of Aroostook County would be in the Park.

In the year 2000, Tree Growth Taxes generated between \$0.94 and \$1.23 per acre in the proposed Park area. For all of the unorganized townships in the proposed Park, these taxes generated about \$4.3 million. About \$2.5 million came from those proposed Parklands in Piscataquis, \$1.1 million in Somerset, and \$760,000 in Penobscot Counties.

The Park, of course, would not be instantaneously formed as of the date Congress authorized it. It would probably take the federal government decades to acquire all of the land. That makes the

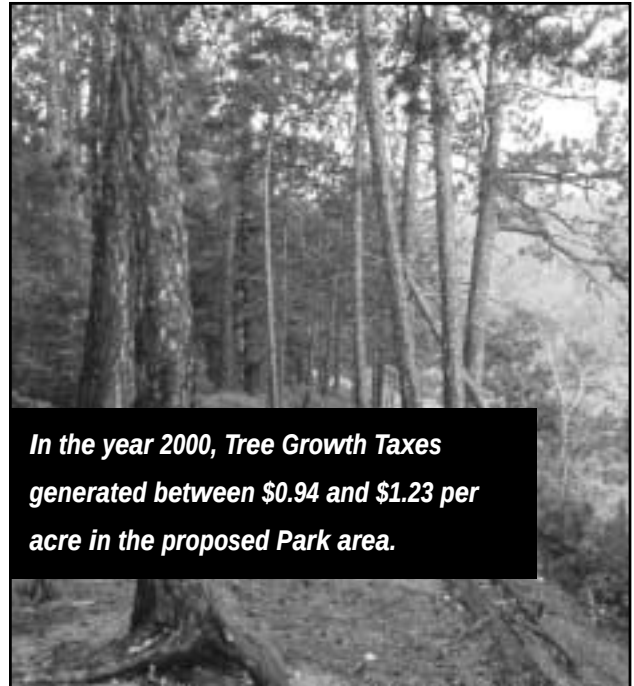
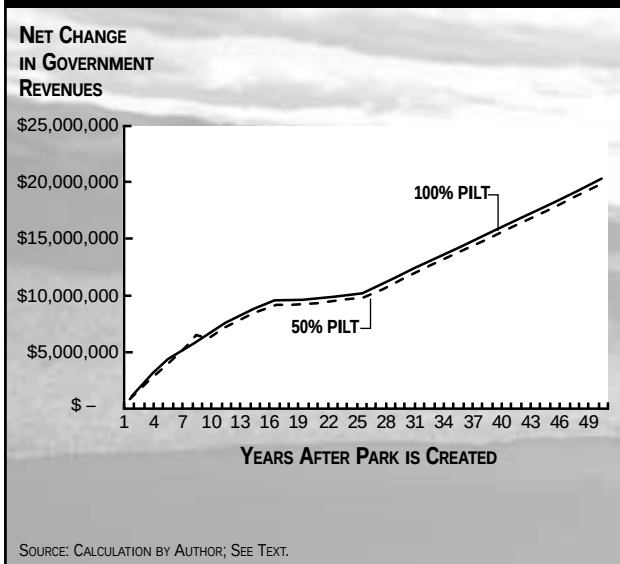


**TABLE 8: ESTIMATED CHANGE IN GOVERNMENT REVENUES RECEIVED IN THE UNORGANIZED PARK AREA: FIRST 15 YEARS  
ADDITIONAL PAYMENTS @ TAX RATE TIMES MARKET VALUE (YEAR 2000)/LAND VALUED AT AVERAGE COUNTY TREE GROWTH VALUES**

| Area                  | Estimated PILT Payments on MWNP Land | Current Taxes Tree Growth Year 2000 | Additional Payment @ Tax Rate Times Value | Growth in Local Government Revenues at 0.025% per year for 15 years | Sum of PILT, Supplemental Payments and Growth minus Lost Taxes 100% PILT | Sum of PILT, Supplemental Payments and Growth minus Lost Taxes 50% PILT |
|-----------------------|--------------------------------------|-------------------------------------|-------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Unorganized Territory | \$3,190,986                          | \$3,123,314                         | \$3,123,314                               | \$6,008,504                                                         | \$9,199,490                                                              | \$8,219,576                                                             |
| Aroostook County      | \$26,851                             | \$14,421                            | \$14,421                                  | \$1,787,641                                                         | \$1,814,492                                                              | \$1,801,066                                                             |
| Piscataquis County    | \$1,231,158                          | \$1,905,321                         | \$1,905,321                               | \$502,404                                                           | \$1,733,561                                                              | \$1,733,561                                                             |
| Penobscot County      | \$777,234                            | \$549,602                           | \$549,602                                 | \$2,621,981                                                         | \$3,399,215                                                              | \$3,010,598                                                             |
| Somerset County       | \$1,155,743                          | \$653,971                           | \$653,971                                 | \$1,096,478                                                         | \$2,252,221                                                              | \$1,674,350                                                             |

Source: Taxable Land and Property Taxes in Northern Maine's Unorganized Territories by County-2000 (preliminary); author's calculations.

**FIGURE 19: ESTIMATED NET CHANGE IN GOVERNMENT REVENUES IN THE UNORGANIZED TOWNSHIPS DUE TO THE PROPOSED MAINE WOOD NATIONAL PARK**



calculation of the impact of the Park's creation on local government revenues more complex. For our analysis we have assumed (as we did in the previous section) that Parklands would be purchased over a relatively brief 10 year period. As each parcel is transferred to the federal government, we assume that PILT payments begin for that parcel. In addition, we assume that the supplemental transitional payments begin for that parcel and continue for 15 years. This is slightly longer than the period authorized for Acadia National Park (12 years). However, given the larger size of the proposed Maine Woods National Park it is likely that Maine could obtain supplement payments for an extended period.

This phase in of PILT and supplemental payments and then the phase out of supplemental payments would spread the adjustment period over a 25-year period. During that time, as discussed above, economic activity associated with the proposed Maine Woods National Park would slowly expand, supplementing the local tax base. In the modeling here, we have assumed a very slow expansion of taxable valuation, a tiny fraction of 1 percent a year, associated with the establishment of the Park.<sup>131</sup> The net result of these relatively modest changes stretched over several decades, would be a systematic positive adjustment, not some sudden shock to state and local government revenues. Figure 19 graphically presents the projected flow of federal funds to state and local governments in Maine over a 50-year period.<sup>132</sup>

Note that for the first decade and a half, federal payments are significantly larger than the lost tax revenues from the lands incorporated into the proposed Park. As the supplemental pay-

<sup>131</sup>Our analysis assumed a real growth rate in local government tax revenues of 0.05 percent or one-twentieth of one per cent per year, applied to all local government revenues within the affected counties. A million dollars in tax revenues would increase \$500 in a year at this rate. In other words, the analysis demonstrates that even a small positive impact resulting from the proposed park would provide a significant benefit to the local economic base over time. This growth rate is only about half as great as the growth rate in employment that we estimated earlier.

<sup>132</sup>The little peak on the 50% PILT graph line at year 8 is due to the federal cap on PILT payments to low population counties taking effect in Piscataquis County as more and more acres are added to the Park.

**TABLE 9: COMPARISON OF ACTUAL TREE GROWTH TAX PAYMENTS AND PROJECTED PILT PAYMENTS  
IN THE PROPOSED MAINE WOODS NATIONAL PARK AREA**

| Area                              | Tree Growth Tax Revenues<br>per Acre in the Proposed<br>MWNP Area (2000) | Estimated PILT per Acre<br>FY 2001 100% | Estimated PILT per Acre<br>FY 2001 50% |
|-----------------------------------|--------------------------------------------------------------------------|-----------------------------------------|----------------------------------------|
| Total for Park Area (Unorganized) | \$1.10                                                                   | \$1.55                                  | \$0.78                                 |
| Aroostook County                  | \$0.94                                                                   | \$1.74                                  | \$0.87                                 |
| Piscataquis County                | \$1.10                                                                   | \$0.71                                  | \$0.71                                 |
| Penobscot County                  | \$1.23                                                                   | \$1.74                                  | \$0.87                                 |
| Somerset County                   | \$0.99                                                                   | \$1.74                                  | \$0.87                                 |

Source: Maine Bureau of Taxation, 2000 County Summaries  
for Unorganized Territories (preliminary)

ments begin to be phased out after 15 years, the assumed gradual growth in economic activity associated with the proposed Park has accumulated enough momentum to continue to carry government revenues upward whether PILT is funded at 100 or 50 percent.

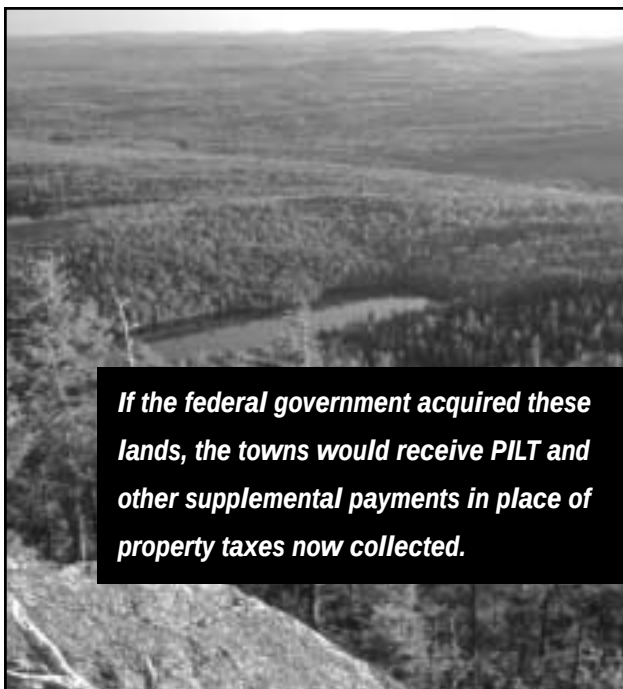
If we take a snap shot view of local government revenues 15 years after the creation of the Park, the combined impact of the PILT and the additional transitional payments made during the first 15 years would be positive even if PILT is funded at only 50 percent. This net impact is shown in Table 8. More detailed tables in Appendix B show the basic data and the calculations supporting the table. The value for Piscataquis County is the same for both 100 and 50 percent of PILT funding because PILT payments would be capped at 41 percent of the PILT per acre payment to avoid an unfair windfall.

Table 9 compares the tax yield per acre with the estimated PILT payment. The supplemental payments during the first decade are not included in the reported revenues per acre, just the authorized PILT payments.

Overall, for the unorganized townships, the estimated PILT payments (at 100 percent of their authorized levels) would be significantly above current Tree Growth Taxes for all counties except Piscataquis where the federal cap on PILT payments to small counties would take effect. It should be noted that the Tree Growth Tax revenues in the unorganized areas do not flow to local governments. Rather, they are collected by the State and used to fund services for all of the unorganized territories in Maine.

It is important to put these estimated gains and losses into context. The changes in tax income would be exceedingly small when compared to total local government revenues. For the 4 counties, total local government revenues were about \$800 million in the year 2000 while the difference between projected PILT payments and existing Tree Growth Tax revenues would total less than \$100,000 or .01 percent.<sup>133</sup> In addition, the State of Maine has not fully fund-

<sup>133</sup>US Bureau of the Census, *Census of Governments, Compendium of Government Finances* v.4, n. 5 (1992), GC92(4)-5, Table 50, adjusted between 1991-1995 by the rate of increase in local government revenues in Maine and between 1995-2000 by the Consumer Price Index.



*If the federal government acquired these lands, the towns would receive PILT and other supplemental payments in place of property taxes now collected.*

ed the Tree Growth Tax program in recently years. Because of that, we may be over-estimating the Tree Growth Tax revenues. The federal PILT payments could be significantly higher than actual state funding for the unorganized townships within the proposed Maine Woods National Park.

#### **D. The Organized Municipalities Potentially Affected by the Proposed Maine Woods National Park**

Several organized towns (municipalities) on the periphery of the proposed Maine Woods National Park would have parts of their undeveloped forestlands included in the Park as the boundaries are currently proposed. This is due to the fact that the boundaries of these municipalities stretch far beyond the actual settled and developed portions of these towns. The Park boundary is drawn, however, so that the proposed Park does not incorporate the developed areas of any municipalities.<sup>134</sup>

The municipalities potentially affected by the proposed Park are shown in Table 10. They are located in Piscataquis and Penobscot Counties. The largest are East Millinocket and Greenville. The Park boundaries could include 10 to 50 percent of the undeveloped backcountry land in these towns, if the landowners wanted to sell.<sup>135</sup> If the federal government acquired these lands, the towns would receive PILT and other supplemental payments in place of property taxes now collected.

Currently the taxable Tree Growth value of the forested backcountry land in these towns is relatively low, yielding between 1 and 3 dollars per acre in tax revenues each year. As a result, these lands make a relatively small contribution to total municipal property tax collections, averaging about 2.3 percent of total municipal property taxes.

If, to simplify the description here, we look at the impact of the proposed Park at a point 15 years in the future after the federal government is assumed to have acquired all of the Park land, the following describes the changes in municipal revenues associated with the replacement of local property taxes with federal payments: in all of the affected communities, the combination of PILT, the supplemental payments, and growth in the municipal tax base during the first 15 years would slightly exceed the current tax revenues even if PILT is only funded at 50 percent. The net impact is between 1 and 3 percent of current tax revenues.

<sup>134</sup>As noted earlier, the Maine Woods National Park proposal envisions that lands would be acquired on a willing-seller basis. Private owners could choose to keep their property indefinitely. See RESTORE: The North Woods, 1999, p. 17.

<sup>135</sup>The boundary of the proposed Maine Woods National Park is approximate and preliminary. An acquisition boundary would have to be established by Congress in legislation creating the Park. Within that boundary lands could be acquired from donors and from willing sellers at fair market value. Municipalities would be able to say whether they wanted any of the lands in their jurisdiction to be within the purchase boundary. If they chose not to have lands within the boundary, they would not be eligible for PILT payments. See RESTORE: The North Woods, *Maine Woods Proposed National Park & Preserve: A Vision of What Could Be* (Concord, MA, 1994).

**TABLE 10: CHANGE IN MUNICIPAL REVENUES DUE TO THE PROPOSED NATIONAL PARK DURING THE FIRST 15 YEARS  
ORGANIZED TOWNS AFFECTED BY THE PROPOSED MAINE WOODS NATIONAL PARK**

| Municipality          | County             | Estimated PILT Payments on MWNP Land | Current Taxes Tree Growth Year 2000 | Additional Payments @ Current Tax Rate | Growth in Local Government Revenues at 0.025% per year for 15 years | Sum of PILT, Supplemental Payments and Growth minus Lost Taxes 100% Pilt | Sum of PILT, Supplemental Payments and Growth minus Lost Taxes 50% Pilt |
|-----------------------|--------------------|--------------------------------------|-------------------------------------|----------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Greenville            | Piscataquis        | \$7,845                              | \$32,247                            | \$32,247                               | \$16,686                                                            | \$24,531                                                                 | \$20,608                                                                |
| Brownville            | Piscataquis        | \$1,426                              | \$6,399                             | \$6,399                                | \$4,885                                                             | \$6,311                                                                  | \$5,598                                                                 |
| Bowerbank             | Piscataquis        | \$3,922                              | \$3,344                             | \$3,344                                | \$949                                                               | \$4,871                                                                  | \$2,910                                                                 |
| Willimantic           | Piscataquis        | \$7,132                              | \$14,326                            | \$14,326                               | \$2,572                                                             | \$9,703                                                                  | \$6,138                                                                 |
| Monson                | Piscataquis        | \$5,705                              | \$17,453                            | \$17,453                               | \$2,293                                                             | \$7,999                                                                  | \$5,146                                                                 |
| Shirley               | Piscataquis        | \$3,566                              | \$7,958                             | \$7,958                                | \$1,206                                                             | \$4,772                                                                  | \$2,989                                                                 |
| <b>Subtotal</b>       | <b>Piscataquis</b> | <b>\$29,596</b>                      | <b>\$81,728</b>                     | <b>\$81,728</b>                        | <b>\$28,591</b>                                                     | <b>\$58,187</b>                                                          | <b>\$43,389</b>                                                         |
| East Millinocket      | Penobscot          | \$3,190                              | \$2,942                             | \$2,942                                | \$29,193                                                            | \$32,383                                                                 | \$30,788                                                                |
| Medway                | Penobscot          | \$8,720                              | \$8,317                             | \$8,317                                | \$6,236                                                             | \$14,957                                                                 | \$10,597                                                                |
| Stacyville            | Penobscot          | \$17,441                             | \$12,852                            | \$12,852                               | \$4,048                                                             | \$21,489                                                                 | \$12,769                                                                |
| Patten                | Penobscot          | \$10,464                             | \$11,316                            | \$11,316                               | \$3,801                                                             | \$14,265                                                                 | \$9,033                                                                 |
| <b>Subtotal</b>       | <b>Penobscot</b>   | <b>\$39,816</b>                      | <b>\$35,427</b>                     | <b>\$35,427</b>                        | <b>\$43,279</b>                                                     | <b>\$83,094</b>                                                          | <b>\$63,186</b>                                                         |
| <b>Total of Above</b> |                    | <b>\$69,412</b>                      | <b>\$117,155</b>                    | <b>\$117,155</b>                       | <b>\$71,869</b>                                                     | <b>\$141,281</b>                                                         | <b>\$106,575</b>                                                        |

Source: 1998 Municipal Valuation Return Statistical Summary, Maine Revenue Services, Augusta, Maine FY99 PILT Payment increased by the Consumer Price Index to FY2001 level.

The overall conclusion from these calculations is that the impact on state and local property tax revenues of transferring private lands within the proposed boundary to a Maine Woods National Park would be quite small and, overall, positive during the decade or two following the creation of the Park. These calculations are shown in the table below and Appendix B. The reason the net impact for the towns in Piscataquis County are the same for both 100 and 50 percent of PILT in Table 10 is that Piscataquis County would already be limited to payment below 50 percent of the authorized per acre payment because of its small population size.

#### **E. Impacts on Government Revenues in the Context of a Dynamic Economy**

The calculations above were based on a static “snapshot” of an economy in which one source of government revenue is replaced with another and nothing else changes. Of course, the economy is never static and the creation of a Maine Woods National Park would have a significant impact on the regional economy. The creation of the proposed Park would phase out commercial logging on these lands as they were acquired for the Park. As discussed above, that would reduce or shift timber harvests to other areas. Forest product mills would not simply go without the wood fiber previously obtained from these lands; instead, supply patterns and log flows would shift. Some economically marginal operations could go out of business. On the other hand, judging from the level of economic vitality found in areas adjacent to virtually all other large National Parks, increased economic activity could be expected because of the establishment of a National Park in northern Maine. New residents and businesses typically are drawn to areas adjacent

---

to these protected lands. In addition, recreational activity and tourism could be expected to expand. In short, a different economy would develop.

These factors were discussed in earlier sections of this report. A business-as-usual scenario in which northern Maine simply continues to rely on forest products while that industry provides fewer and fewer jobs will lead to additional economic decline. In that setting, state and local governments are going to lose tax revenues because of a contracting economy. In contrast, a Maine Woods National Park could be expected to stimulate a new type of economic development just as National Parks elsewhere in Maine and the nation have done. We analyzed that transition in an earlier section. Here, we combine that with the discussion of the impact of the Park on local government revenues.

The earlier analysis of the net impact of the proposed Maine Woods National Park on employment opportunities indicated that, as the Park was slowly created, some forest products jobs would be phased out. However, new employment opportunities associated with the Park would more than offset those losses, leading to an ongoing expansion of new employment opportunities. This would be a slow and modest transformation, providing plenty of time for individuals and communities to adjust. Expanding population and employment would lead to investments in new businesses, new commercial infrastructure, and new homes, all of which would boost local property tax payments in gateway towns. Spending by Park visitors and a stable or growing local population would boost excise, sales, and income tax revenues. In that sense it is incomplete and misleading to focus only on the impact that replacing Tree Growth Taxes with federal PILT and other payments would have on local government revenues. As Figure 18 indicated, the net impact on government revenues would be expected to be positive.<sup>136</sup>

---

<sup>136</sup> A complete analysis of the fiscal impact of the proposed Park would not just focus on state and local government revenues. It would also look at changes in the level of demand for public services and the adequacy of government revenues to fund expanded services to meet that demand. The implicit assumption being made in the discussion above is that the expanding economic activity and the tax base it provides would be able to support the needed expansion of public services. A more complete feasibility study for the proposed Maine Woods National Park could seek to model fiscal impacts in more detail.

## VI THE ECONOMIC IMPACT OF THE PROPOSED MAINE WOODS NATIONAL PARK IN THE BROADER SOCIO-ECONOMIC CONTEXT

### A. Introduction

As pointed out earlier, the primary purpose of this report is to answer the many economic questions and concerns that have been raised in response to the Maine Woods National Park proposal. However, there are clearly a number of other social, environmental, and cultural factors that are critically important to anyone who is concerned with the future of northern Maine. The goal of this chapter is to view the economic impacts of the proposed National Park in this broader socio-economic context.

The previous chapters of this report examine some of these issues through empirical analysis. This chapter diverges from that format to provide a more qualitative discussion that seeks to give more insight on how this report relates to broader current concerns. Specifically, it seeks to define the values that are most important to the people of northern Maine, determine how a National Park could conflict with or complement these values, and explore how change can be a positive force in shaping the social, environmental, and cultural future of northern Maine.

### B. Shared Socio-Economic Concerns

There appears to be a broad consensus among the citizens of northern Maine regarding the economic, social, and environmental values that are most important to the region. A Maine Woods National Park (or any initiative that would affect the land and people of the region) is likely to be judged by how it addresses the following major issues.

#### i. A Sustainable Forest Products Industry

Most northern Mainers agree that a healthy forest products industry is a critical part of the northern Maine economy and traditional way of life. They are very concerned about the long-term impacts of declining employment, mill downsizing and closures, unsustainable harvesting, and ownership volatility in the industry. They support initiatives that seek to secure the role of the forest products industry in Maine's future through diversification, capital investment, and other means. The question is whether the proposed Maine Woods National Park would complement this important industry or further weaken it.

#### ii. A Healthy Environment

Northern Maine citizens recognize that the Maine Woods is important not only for timber production, but for wildlife habitat, clean air and water, beautiful scenery, outdoor recreation, and other public values. Limiting commercial development of lakes and rivers, promoting sustainable logging practices, and restricting logging in particularly sensitive and unique areas of the Maine Woods is widely seen as vital to maintaining the region's character and integrity.

*The people of Northern Maine cherish their traditions and way of life, and they want to be involved in decisions that will affect their communities and livelihoods.*





The question is how does environmental protection impact the economy. And how does the proposed Maine Woods National Park fit into the equation?

### **iii. Quality of Life in Local Communities**

The people of northern Maine cherish their traditions and way of life, and they want to be involved in decisions that will affect their communities and livelihoods. However, they are concerned that these values are being eroded by events beyond their control. They are worried about their economic future as the forest products industry undergoes major changes in response to global forces. They fear that public access to the region's forestlands, especially to the rivers and lakes, is threatened by shifting land ownership and expanding private, commercial and residential development. They have a growing sense that people and interests from outside their communities who may not understand or share their values, are gaining increasing influence over the region. The question is whether a Maine Woods National Park would exacerbate these problems or help mitigate them.

## **C. How the Proposed Maine Woods National Park Would Address These Concerns**

### **i. Impact on Maine's Forest Products Industry**

The type of economic diversification that sticks closest to the region's past commitment to forest products is further development of the wood-based economy. A significant proportion of the tree harvest in Maine and in the area of the proposed Maine Woods National Park now leaves the state and region unprocessed. The most basic element of "value added" activity would be to process those logs in state before they are exported.

Some value added paper and solid wood products are being produced in Maine. However, a large portion of the processing of Maine's wood fiber is limited to manufacturing basic building materials or pulp and paper. Additional processing that produced more specialized building products or more high-end paper products would add value and employment. The more processing into a larger variety of final products that takes place, the more employment. Furniture production, not only mass-produced but also handcrafted products, is one opportunity. Similarly, instead of exporting large rolls of paper, particular paper products such as envelopes, stationery, or paper bags could be manufactured. Diversifying the wood fiber economy into as many of these areas as possible is attractive from both an economic and cultural point of view.

Unfortunately, complex sets of economic forces mixed with a healthy dose of historical accident tend to direct the location of manufacturing activity. Transportation costs, population densities, established milling capacity, workforce experience, wood fiber quality, quantity, and cost, etc. tend to maintain a pattern of pro-

duction that changes only slowly over time. That is not a reason to ignore the opportunities for this type of diversification within wood products, but this type of development, if it comes at all, normally comes slowly.

It is also important to realize that this type of diversification within forest products can take place within almost any sized timber harvest since it is tied to further processing of the fiber already being harvested rather than to an increase in harvest. A modest decline in timber harvest due to the proposed National Park would not discourage this type of diversification. As was pointed out in an earlier chapter, almost 90 percent of Maine's timber harvest would be unaffected by the proposed Park. The proposed Park would encompass approximately 14 percent of the state's total acreage and 19 percent of its commercial forestlands. The creation of the proposed Park over time would not mean that most of Maine's forests would cease to be managed for wood or that the forest products industry would go without the wood it needs. Indeed, to the extent that it would introduce many more visitors to "Made in Maine" products, the Park would be likely to support this type of diversification in wood products towards more finished products.

## **ii. Impact on the Environment**

Many of those concerned about northern Maine's future realize that diversifying the forest products sector is not the only way to stabilize the economy and safeguard the northern Maine way of life. Northern Maine's social and economic future is also tied to protecting and restoring some of the unique natural qualities associated with the region: its rivers, lakes, forests and native wildlife.

Unfortunately, the management of virtually all of the forests of northern Maine as commercial "working forests" can conflict with the protection of natural forests, wildlife, water quality, and other environmental values as well as the recreation that depends on them. The private owners of this forestland dictate the size, scheduling, and location of timber harvests. Depending on national and international market conditions and the internal cash flow objectives of new or existing corporate owners, forest practices may be used that could seriously damage the recreation and wildlife potential of the Maine Woods even on lands where public or non-profit organizations have purchased the development rights.

Alternatively, if lands are purchased by investors who are interested in the development potential for second homes, resorts, etc., the character of the natural landscape could be changed dramatically in ways that also interfere with public recreational uses. In both cases, environmental quality could be significantly degraded. As long as the lands remain in private hands, private profit calculations will likely drive how those lands are treated. Because only a few large corporations and investment groups own most of these lands, there is the potential for sudden and large-scale change.



*[D]iversification within forest products can take place within almost any sized timber harvest since it is tied to further processing.*



As noted earlier, there are a variety of efforts underway to protect lakeshores, river frontage, and other key lands from residential and commercial development that would limit public access and dramatically change the natural character of these areas. Toward this end, the citizens of Maine have authorized the public purchase of lands that are considered too important to have their future dictated entirely by private development interests. Non-profit organizations have been doing the same thing.

New private residential and resort development is generally perceived as a more immediate threat than logging. Many recent conservation efforts in northern Maine have focused on purchasing development rights while leaving logging rights in the hands of the commercial forest owners. This approach has the additional appeal of stretching purchase dollars since the cost of purchasing development rights, especially for relatively isolated lands, is less than the cost of buying the land outright. However, some conservationists contend that the purchase of development rights alone may not adequately ensure the protection of all the public benefits associated with the Maine Woods.<sup>137</sup>

These popular landscape protection efforts are motivated by the same basic environmental concerns that have led to the Maine Woods National Park proposal. There is an economic component to both of these efforts too. Proponents realize that the quality of northern Maine's natural environment will play an important role in the region's economic future and in determining the well-being of the residents of the region and the state.

In fact, there are enormous economic opportunities associated with assisting visitors who seek to pursue the recreation opportunities in a protected natural landscape. In many ways, the commercial recreation centered on those forest ecosystems is one of Maine's most important natural resource industries.

Commercial recreation and tourism can have a variety of impacts; the range of different types of recreational economies is actually quite wide. In some places, both near a few National Parks and in many other locations, "industrial-grade" tourism that emphasizes huge volumes of visitors and is primarily built around unskilled, low paid jobs is common. On the other hand, a commercial recreation economy can include guided recreation experiences that focus on small groups of visitors who spend a longer period of time in the area being instructed by skilled and knowledgeable specialists. Communities in the area around the proposed Park already recognize that potential. Somerset and Piscataquis Counties, for instance, are part of a Mountain Counties Heritage project that seeks to expand cultural and heritage tourism. The establishment of a Maine

<sup>137</sup> See, for example, Northern Forest Alliance, *Conservation Easements in the Northern Forest: Principles and Recommendations for the Development of Large-Scale Conservation Easements in the Northern Forest* (Montpelier, VT: Northern Forest Alliance, 2001), p. 3.

Woods National Park could enhance their ability to market their services and attract clients.

Outdoor recreation opportunities contribute to local economic vitality in ways other than drawing temporary visitors. Most of the economic vitality projected by this report would not be associated with visitors to the proposed National Park. Only about a quarter of the slowly expanding jobs would be “tourist” jobs. The other three-quarters would be associated with new permanent residents and businesses drawn by the natural amenities. In that sense this would represent true diversification, not just the expansion of the existing tourist sectors.

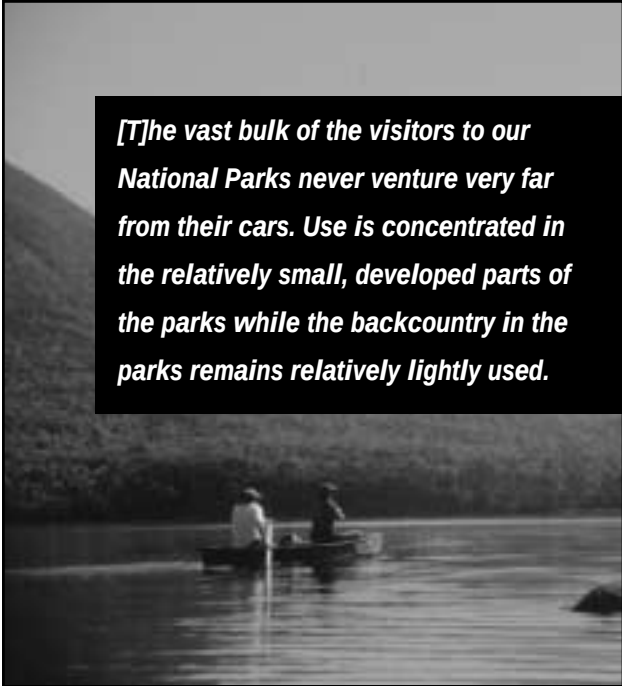
This amenity-based development is increasingly common in today’s economy because some types of economic activity have become increasingly footloose. This has allowed a greater economic role for people’s preferences for the type of community and landscape in which they would like to live. Landscapes and communities that are attractive to new permanent residents tend to show more economic vitality as a result of peoples’ and businesses’ location decisions. This phenomenon of amenity-assisted economic development is related to the recreation and tourist economy because it is often these that introduce people to what a particular location has to offer. Clearly a National Park can help build economic development around these potentials. That has been the overwhelming experience of communities near existing National Parks across the country.

By its very nature, the establishment of a Maine Woods National Park would announce the permanent protection of a unique American natural and historic landscape. The environmental services that flow from that protected landscape, recreation opportunities, clean air and water, wildlife, open space, scenic beauty, etc. would also receive permanent protection. The result would be a new, stable, anchor for economic activity. This could be expected to trigger private investments on the periphery of the Park that would boost employment and income opportunities. As pointed out in an earlier section, the permanent protection that National Park status confers on a landscape tends to attract economic activity. This should not be surprising. People care about where they live and where they play, and they act on those preferences. As they do, economic activity shifts to facilitate their decisions. The result is enhanced local economic vitality.

Some are concerned that this economic vitality may come at a price. For example, it is sometimes asserted that National Parks fail to protect the natural landscapes they were intended to preserve because they draw so many people that the area gets “loved to death.” The concern is that even if the resource itself does not get damaged, the outdoor recreational experience can be harmed because of crowding and congestion on trails, in campgrounds, and on roads. If this happened, the enjoyment of the

***The proposed National Park would not have a negative impact on the economy nor would it bring an explosive boom.***





*[T]he vast bulk of the visitors to our National Parks never venture very far from their cars. Use is concentrated in the relatively small, developed parts of the parks while the backcountry in the parks remains relatively lightly used.*

backcountry by local residents could be degraded by the large number of temporary visitors. The congested roads and turnouts in our most popular National Parks seem to lend credence to that fear. The intense use of parts of Acadia National Park and the Katahdin area of Baxter State Park provide local reinforcement of this experience.

However, in fact the vast bulk of the visitors to our National Parks never venture very far from their cars. Use is concentrated in the relatively small, developed parts of the parks while the backcountry in the parks remains relatively lightly used. In Baxter State Park use is concentrated in the Mt. Katahdin area while use in other parts of the park is significantly less. Even in heavily visited Acadia National Park, one can find solitude on the uncrowded western side of the Island or on the Schoodic Peninsula. Local residents are able to make use of their more detailed knowledge of a park and its use patterns to avoid the more heavily congested areas. Moreover, they are likely to continue to have premium access to the backcountry. That may explain why residents of Mt. Desert Island felt Acadia National Park enhanced their access to outdoor recreational opportunities rather than reduced it.

### **iii. Impact on Local Quality of Life**

#### **a. Stimulating Economic Development While Maintaining Community Identity**

If one accepts that the Maine Woods National Park could help diversify the economy, the corollary concern is that the Park would bring too much economic development. That is the creation of a park would have an announcement effect that would bring hordes of temporary visitors, second-home owners and new residents. These newcomers would congest the backcountry, overburden public and private infrastructure, and change the character and quality of northern Maine's small towns. If such a change occurred, it could clearly represent a real loss to existing residents.

This set of fears is built around the assumption that the new National Park would be spectacularly successful in drawing new people and businesses to the region. One of the diversification objectives, to bring new economic activity to the region that is centered on its recreation opportunities, would have been so successfully met that the region would be threatened with over-reliance on recreation. This set of concerns is not compatible with the criticism of the Park proposal that argues that the Park would fail to stimulate the local economy and might actually reduce recreational activity because of the restrictions perceived to be associated with National Parks. As explained earlier, the results of our analysis lie in between these two extremes. The proposed National Park would not have a negative impact on the economy nor would it bring an explosive boom. Instead it would stimulate a modest ongoing expansion of employment and population. The creation of the Park would take place

gradually in the context of a dynamic changing economy that could adapt to the changes the Park would bring with it.

As discussed earlier, tourism and commercial recreation can affect communities in unattractive ways when they get out of balance with the rest of the economy. However, this does not have to happen. For every Gatlinburg and Pigeon Forge, Tennessee, adjacent to Great Smoky Mountains National Park, there are many “gateway” communities that consciously choose to preserve their historical and cultural character and to resist the cheap commercialization that tourism can bring.<sup>138</sup> A community that wants to avoid the undesirable effects that can go with large numbers of temporary visitors can do so if it has the political will. The experience of other communities indicates that it is possible to limit the amount and character of local growth and work with other communities and state government to disperse visitors and accommodations among many towns. When there are likely to be many different access points rather than just one or two portals, as is the case with the proposed Maine Woods National Park, the ability to disperse and manage the impact and opportunities is enhanced. Because the expected overall impact of the proposed National Park would be modest to begin with, the potential for such successful management of the impacts would be even higher.

There are many examples of popular National Parks where tourism has not transformed communities in unattractive ways. That is not to say that the National Parks have not changed the communities. National Parks do appear to stimulate economic activity, but, then, many communities in northern Maine are actively seeking some economic stimulation in order to avoid stagnation or decline. What is at issue is not whether communities can freeze themselves in time, but whether they can remain attractive places to live and raise families. For instance, the small towns surrounding Yosemite, Kings Canyon, and Sequoia National Parks in California have not become simply “honky-tonk” tourist towns. They have retained their small town character and have grown primarily as the result of drawing new permanent residents. In Montana the Flathead Valley adjacent to Glacier National Park and the Gallatin and Paradise Valleys adjacent to Yellowstone have shown considerable economic vitality. But that economic development, centered on Kalispell and Bozeman, has been extremely diverse, and only a small part of it tied to tourism itself. North Cascades National Park along the Canadian border in north-central Washington has not transformed the small towns in the Okanogan Valley on the Park’s east flank into tourist towns except where one town (Winthrop) consciously embraced that role.

The residents of Mt. Desert Island in Maine have had an unusually intimate experience with a National Park. Acadia National Park occupies about one-half of the island; the other half is comprised of

***There are many examples of popular National Parks where tourism has not transformed communities in unattractive ways. For instance, the small towns surrounding Yosemite, Kings Canyon, and Sequoia National Parks in California have not become simply “honky-tonk” tourist towns.***



<sup>138</sup>See Jim Howe et al., *Balancing Nature and Commerce in Gateway Communities* (Washington DC: Island Press, 1997), pp. 34-36.



***A 1990 study of residents' evaluation of the impact of Acadia National Park on their community reported...that the impact on overall quality of life was significantly positive.***

private lands in a number of small communities. The park boundary is highly irregular, resulting in a complex landownership pattern highlighted by substantial intermixture of public and private land.<sup>139</sup> This means that the large flow of visitors (nearly 3 million a year) unavoidably affects private lands and communities. A 1990 study of residents' evaluation of the impact of Acadia National Park on their community reported largely positive reactions. Residents reported that the impact on overall quality of life was significantly positive. Rather than limiting recreational opportunities, the Park had a strong positive impact on the availability of recreational opportunities. In addition, they felt that the range of available cultural activities had expanded significantly because of the Park. Air and water quality was protected by the presence of the Park, and the fire and police protection were improved as was the quality of the schools. Overall, local residents evaluated the changes in values, norms, and customs ("ways of doing things and thinking") because of the presence of Acadia National Park as positive.<sup>140</sup>

The economic changes due to Acadia National Park were also evaluated by residents as positive, confirming the results of our analysis of large National Parks around the nation. The Park positively affected job opportunities, the income level of residents, the unemployment rate, and the level of poverty. Opportunities for shopping were also expanded.

Not surprisingly, there were also some negative evaluations. Park visitors caused increased traffic congestion a few days each year. In addition, residents felt that the Park had caused the cost of land and housing (including property taxes) to rise. There is no doubt that land values, housing costs, and property taxes did rise. This also happened along most of the rest of the Maine Coast. The extent to which Acadia National Park has had an impact over and above what was experienced elsewhere on the coast can be determined only with careful empirical analysis.

Judged by residents of Mt. Desert Island, one of the areas in the nation most heavily impacted by a National Park, the overall effect of Acadia has been quite positive. Notably, this includes the Park's impact on the values that the residents of northern Maine are most concerned about: quality of life, community values, economic vitality, and access to recreation.

<sup>139</sup> All of the results reported below come from Robert E. Manning, "Do Parks Make Good Neighbors?" *Park Science* v. 10, n. 3 (1990), pp. 19-20.

<sup>140</sup> Relying on existing residents to evaluate the changes biases the responses towards favorable evaluations since those who disliked the changes or were hurt by the changes may no longer live there. Population growth in high amenity areas that have a limited land base can drive up land and housing costs. This can make it increasingly difficult for the original residents to remain. This can lead to a more stratified society with the more affluent living in the high amenity areas while workers who provide them with goods and services are forced to commute in from less affluent communities. Given the large privately owned land base surrounding the Maine Woods National Park and the very modest projected growth, this should be much less of a concern.

Of course there would be change in the small towns of northern Maine, if a Maine Woods National Park were to be established. Any successful diversification effort that renews the region's economic vitality will bring change with it. If a diversification effort built around recreation that did not include a National Park were highly successful, for instance, it would have similar impacts. If the objection is to change per se, it is important to realize that the alternative to change, stagnation and decline, is not a very attractive alternative.

#### **b. Democratic Participation in Decision Making**

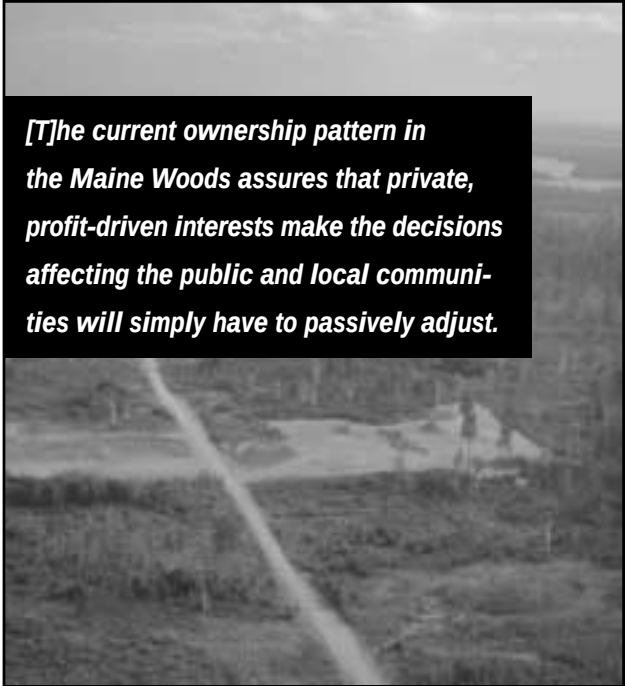
People living in northern Maine communities understand that their quality of life is intimately tied to the fate of the vast forestlands that are their "back yard." Under the current private ownership of the Maine Woods, decisions about the management and use of the land, and public access to it, are made by corporations and investor groups, most of them based far from New England. Guided by the forces of an increasingly globalized economy, a few private individuals determine the future of these lands. In general, the public has little input into the decisions that individuals or corporations make about the use of their own property.

Maine has had dramatic examples of this in recent years as a sizeable fraction of the state's total land base changed owners. Given the different character of the buyers and sellers, the change in ownership is also likely to lead to changes in management objectives. The citizens of Maine had no control over these transfers and will have little or no control over future speculative transfers and the private land management decisions that are made. In that sense, the current ownership pattern in the Maine Woods assures that private, profit-driven interests make the decisions affecting the public and local communities will simply have to passively adjust. This is the existing context to which the proposed National Park should be compared.

Some people are concerned that a Maine Woods National Park would simply shift land ownership from private and corporate outsiders to another "outsider," the national government. There are important qualitative differences between the two, however.

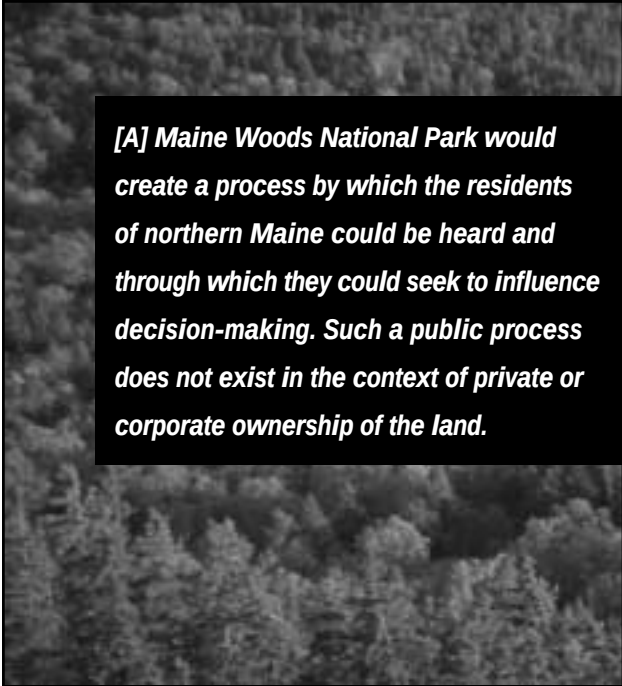
Unlike private or corporate lands, National Parks are owned by all Americans, including the citizens of northern Maine. National Parks are required by law to be managed in the public interest by the National Park Service. Specifically, the agency is mandated under the National Park Service "Organic Act"

"To conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."<sup>141</sup>



*[T]he current ownership pattern in the Maine Woods assures that private, profit-driven interests make the decisions affecting the public and local communities will simply have to passively adjust.*

<sup>141</sup>National Park Service Organic Act of 1916. P.L. 64-235, 16 U.S. C §1 et seq. as amended.



***[A] Maine Woods National Park would create a process by which the residents of northern Maine could be heard and through which they could seek to influence decision-making. Such a public process does not exist in the context of private or corporate ownership of the land.***

In contrast to private or corporate lands, the National Park Service carries out its legal mandate through an open public process. Agency policy requires that

“Public participation in planning and decision-making will ensure that the Park Service fully understands and considers the public’s interests in the parks, which are a part of their national heritage, cultural traditions, and community surroundings. The Service will actively seek out and consult with existing and potential visitors, neighbors, people with traditional cultural ties to park lands, scientists and scholars, concessioners, cooperating associations, gateway communities, other partners, and government agencies. The Service will work cooperatively with others to improve the condition of parks, to enhance public service, and to integrate parks into sustainable ecological, cultural, and socioeconomic systems.”<sup>142</sup>

The National Park Service must also conform to a number of other federal laws designed to ensure public involvement and accountability, which do not apply to private or corporate lands.<sup>143</sup> These include the Administrative Procedures Act,<sup>144</sup> which requires public participation in agency rulemaking, the Freedom of Information Act,<sup>145</sup> which requires the agency to make its nonconfidential records available to any person upon written request, and the National Environmental Policy Act,<sup>146</sup> which requires a systematic public analysis of major agency actions and empowers citizens to take legal action to ensure that the agency operates in accordance with the law.

Although the National Park Service manages our Parks on behalf of all Americans, it works to accommodate, as much as possible, the views and concerns of local residents, businesses, political leaders, and congressional delegations. The agency’s management policies state:

“Since national parks embody resources and values of interest to a national audience, efforts to reach out and consult must be national in scope. But the Service will be especially mindful of consulting with traditionally associated peoples—those whose cultural systems or ways of life have an association with park resources and values that pre-dates establishment of the park.”<sup>147</sup>

National Park Service policies are often withdrawn, modified, or abandoned when there is strong local concern. Moreover, there are opportunities to appeal decisions. The important point is that a

<sup>142</sup>National Park Service, 2001 Management Policies (Washington, DC: USDI, National Park Service, NPS D1416, Section 2.1.3, December 2000, [www.nps.gov/refdesk/mp/chapter2.htm](http://www.nps.gov/refdesk/mp/chapter2.htm)).

<sup>143</sup>For a full listing of legislation affecting the National Park Service, see *Planners’ Sourcebook: Director’s Order 2, Park Planning* (Washington, DC: USDI, National Park Service, Appendix A, December 1998, [www.nps.gov/planning/do2](http://www.nps.gov/planning/do2)).

<sup>144</sup> 5 U.S.C. §551-559, §§701-706.

<sup>145</sup> P.L. 93-502, 5 U.S.C. §§552 et seq.

<sup>146</sup> P.L. 91-190, 83 Stat. 852, 42 U.S.C. §4321 et seq.

<sup>147</sup> *Ibid.*, Section 5.2.1. [www.nps.gov/refdesk/mp/chapter5.htm](http://www.nps.gov/refdesk/mp/chapter5.htm).

Maine Woods National Park would create a process by which the residents of northern Maine could be heard and through which they could seek to influence decision-making. Such a public process does not exist in the context of private or corporate ownership of the land.

#### **D. The Role of Change in Northern Maine's Economic Future**

If they could, most people in northern Maine would probably choose a future similar to the past, at least the more prosperous times in the past. Generations have grown up in a region and landscape dominated by the forest products industry. The forested landscape provided them with a livelihood, offered challenging, inspiring, and rewarding outdoor recreation opportunities, and molded them and their neighbors into small communities that shared a broad set of experiences and values. Although private forest products companies owned most of the land, public use was allowed. Private ownership and public use were largely compatible in practice. It was a hard, not always prosperous, but satisfying life. As important, it was a familiar life.

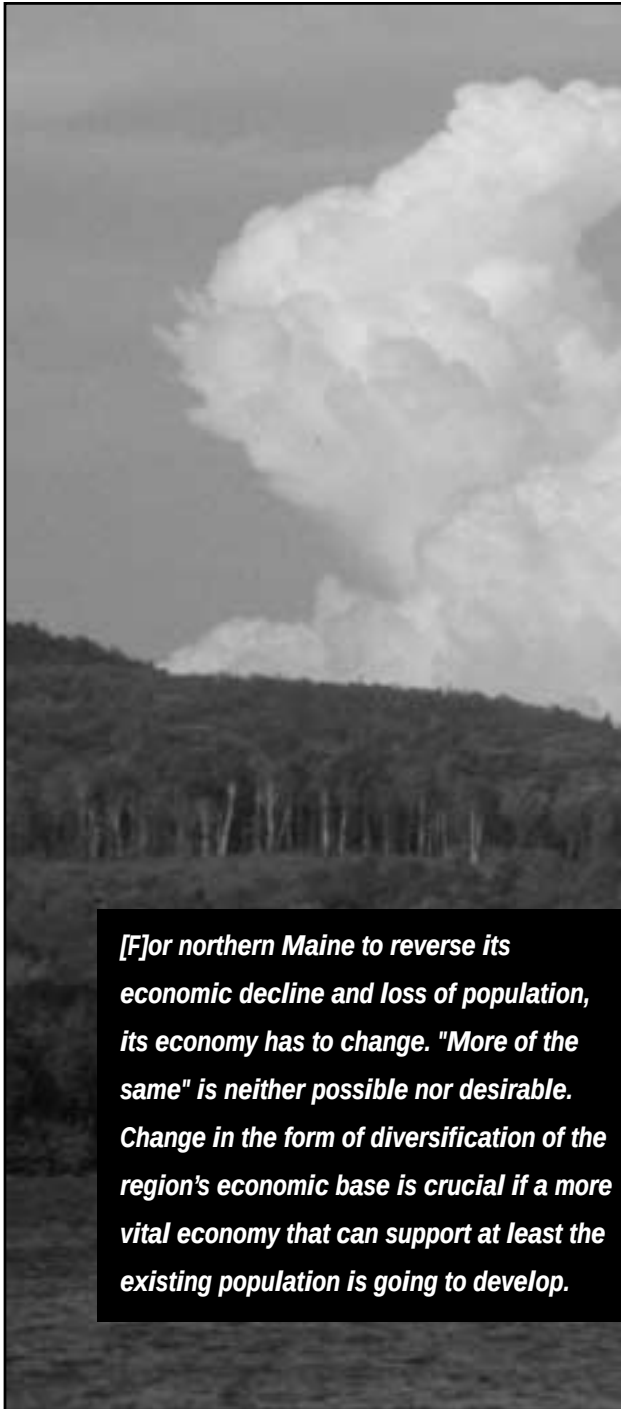
Given all of the social, economic, and cultural values attached to this familiar way of life, it is not surprising that many residents would simply like to keep things the way they were. If, however, one looks around Maine, New England, or the nation for examples of communities that have been able to maintain that sort of economic continuity with the past, the view is not very encouraging.

Those communities whose economies have remained the same over several generations, in general, are not doing very well. It does not matter whether they are farming, ranching, fishing, mining, manufacturing, automobile assembly, railroad, textile, or timber towns, or any of many other type of specialization. Communities tied to industries that were important in the past are highly likely to be in decline now. Because the economy is dynamic and changing and because a market economy encourages mobile labor and capital, communities whose economies do not change decline as labor and capital move to take advantage of the new, more promising, opportunities that have developed elsewhere but failed to develop locally.

The longer an industry has been around, the longer technological improvements have had an opportunity to reduce costs, especially labor costs, displacing workers in the process. The longer, also, competitors have had to launch challenges to industry leaders. This has happened on a grand scale in the natural resource industries, including forest products. As pointed out earlier, the number of workers employed in Maine by the logging and processing of a million cubic feet of wood fiber has declined dramatically over the last half-century. During each decade, on average, the jobs per million cubic feet harvested have declined about 30 percent. Every 20 years, that is, every generation, employment per unit harvest has been cut in half. Over half a century, five-sixths of the employment associated with a particular level of harvest has been lost. The



*If...one looks around Maine, New England, or the nation for examples of communities that have been able to maintain that sort of economic continuity with the past, the view is not very encouraging.*



***[F]or northern Maine to reverse its economic decline and loss of population, its economy has to change. "More of the same" is neither possible nor desirable. Change in the form of diversification of the region's economic base is crucial if a more vital economy that can support at least the existing population is going to develop.***

forest products industry is not particularly cursed in this way. The same phenomenon has been occurring in farming, mining, commercial fishing, etc. Maine has been able to counter part of this downward pressure on forest products employment by expanding harvests several fold. But now wood harvests of many important species are beyond what forest growth can support in Maine and are likely to decline, compounding the loss of jobs.

This nationwide pattern has stretched over more than a century of our economic history. It does not appear that an economic development strategy can be built around keeping the industrial character of the economy the same as it was in the past. Economic continuity of this sort is highly likely to lead to stagnation and decline. There are plenty of signs that such a process is already underway in northern Maine.

However, the population of northern Maine already *has* been productively adjusting to the changes that have been taking place in the region's economic base. Most people living in Maine's unorganized territories (i.e., the LURC jurisdiction) do not make their living in those woodlands. In 1990, 75 percent of them commuted to organized towns and cities to work, with one-third commuting more than 30 minutes.<sup>148</sup> Only 7 percent of the year-round households in the LURC jurisdiction were in forestry or agricultural occupations. As one LURC study concluded: "...insofar as year-round, employed residents of LURC's jurisdiction are concerned, the wildlands function as a very low density suburb, in which residence is separated from workplace. Commuting—frequently fairly long distances—is a daily way of life."<sup>149</sup>

By the year 2001, an even larger percentage were making their living in the more diversified urban economies of northern Maine rather than in the woods themselves. The population, for instance, of Piscataquis County's unorganized territories increased 20 percent between 1990 and 2000 and 77 percent between 1980 and 2000 despite the fact that total population in the county declined between 1990 and 2000.<sup>150</sup> This growth in rural population took place despite the decline in the forest products industry discussed earlier. This pattern of rural growth supported by diversification of urban economies is not unique to the Maine woods. Across rural America, it is the non-farm and non-natural resource economy that is primarily supporting both farm families and other rural residents.<sup>151</sup> Because of that, the diversification of rural and small city economies beyond the natural resource sectors is crucial to allowing residents to continue to inhabit these areas while maintaining their quality of life.

<sup>148</sup>Market Decisions, Inc., *Land Use Regulation Commission Profile and Projections* (South Portland, ME, November 1993).

<sup>149</sup>*Ibid.*, p. 10.

<sup>150</sup>Susan Young, "Mainers take to the woods," *Bangor Daily News* (April 20, 2001).

<sup>151</sup>"Farm Operator Household Income and Wealth Compare Favorably with All U.S. Households," *Rural Conditions and Trends* v. 8, n. 2 (1997), pp. 79-85, Figures 1, 3, and 5.

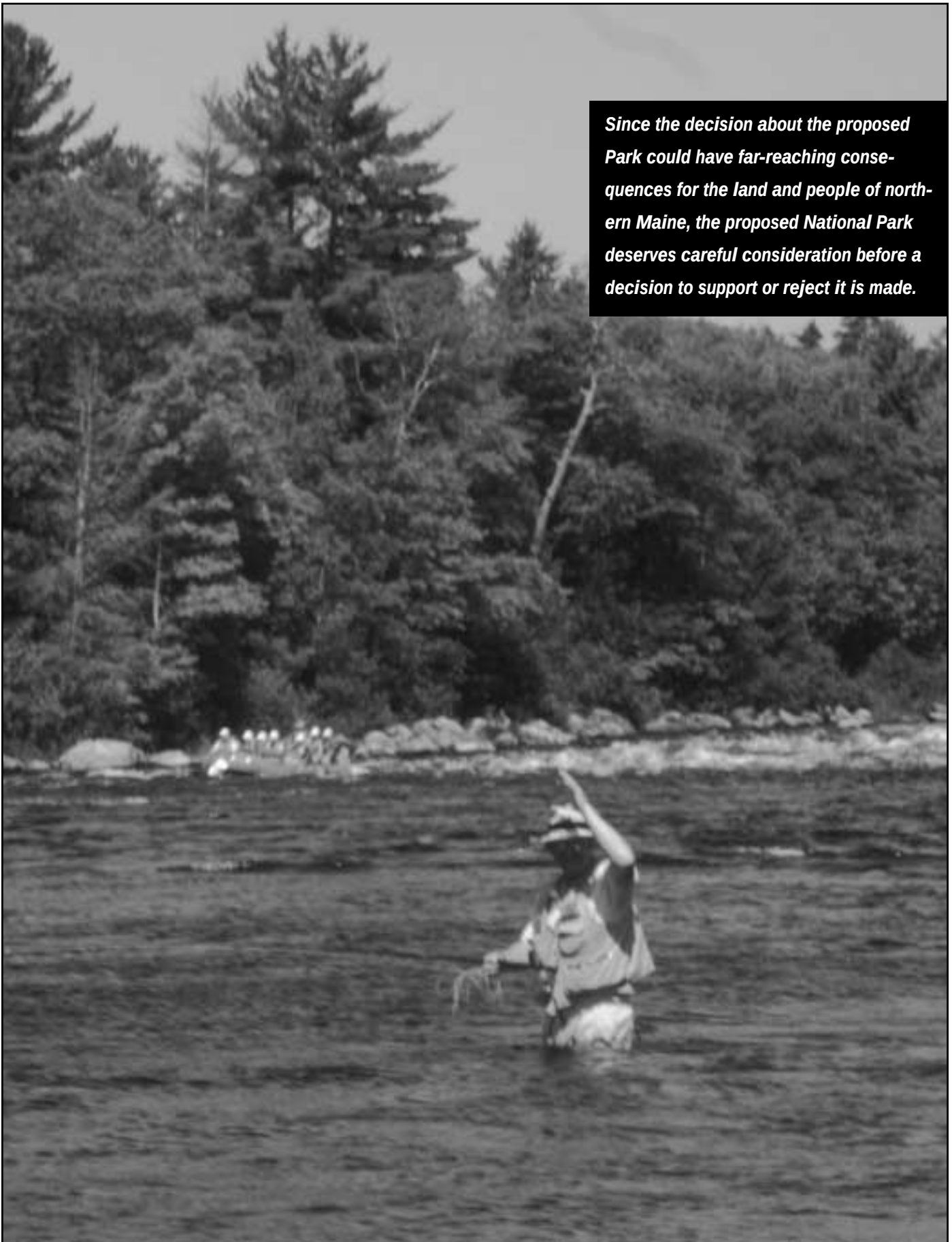
---

If one accepts this premise, then for northern Maine to reverse its economic decline and loss of population, its economy has to change. “More of the same” is neither possible nor desirable. Change in the form of diversification of the region’s economic base is crucial if a more vital economy that can support at least the existing population is going to develop.

This is the context in which the proposed Maine Woods National Park should be viewed. Based on the in-depth analysis presented in previous chapters, a Maine Woods National Park would not hinder economic development in northern Maine, but could actually help it. Although the discussion in this chapter is preliminary, it indicates that such a Park could also be consistent with the social, environmental, and quality of life concerns most important to local people. These complex issues would most likely be addressed in a national park feasibility study, which could provide more in-depth analysis and promote additional public discussion.

The purpose of this report is not to recommend whether or not a new Park should be created. However, the findings of this report indicate that many of the public concerns about the Maine Woods National Park proposal may not be factually based. Since the decision about the proposed Park could have far-reaching consequences for the land and people of northern Maine, the proposed National Park deserves careful consideration before a decision to support or reject it is made.

*Since the decision about the proposed Park could have far-reaching consequences for the land and people of northern Maine, the proposed National Park deserves careful consideration before a decision to support or reject it is made.*



## C ONCLUSIONS

To summarize the analysis and discussion in the preceding sections, we finish with a series of brief conclusions. Because the evidence supporting them has already been supplied above, they are presented here without repeating that evidence or analysis.

1. **National Parks tend to have a strong, positive impact on local economic vitality.** Job, aggregate income, and population growth rates tend to be much higher in the counties and communities surrounding National Parks than in areas not adjacent to National Parks. A review of all of the large National Parks in the nation over the last 30 years indicates that aggregate real income grew twice as fast as the national average. Job growth was almost 3 times faster. Population growth was almost 4 times faster than the national average. A comparison of the economic vitality of the area around Maine's Acadia National Park with that in the proposed Maine Woods National Park area also suggests dramatic differences in economic vitality.
2. **The net economic impact of the proposed Maine Woods National Park would be increased employment opportunities in the communities around the Park.** Reduced timber harvest due to the Park would reduce logging and other forest products employment. However, job growth tied to increased visitation and the attraction of new permanent residents drawn by the protected natural landscapes would more than offset reduced forest products employment. Most of the new jobs would not be "tourist" jobs but the normal mix of economic activities associated with human settlement. The net impacts, while positive, would also be modest in size. The proposed Park would cause neither a disruptive boom nor a painful economic contraction.
3. **The economic impacts of the proposed Park, both positive and negative, would not be felt suddenly** but would be spread over several decades, allowing adjacent communities and the state time to make productive adjustments to the economic opportunities that the Park presents.
4. **The proposed Maine Woods National Park must be evaluated in the context of the economic decline being suffered by the forest products dependent communities in northern Maine.** Regardless of whether a Park is created, there is going to be ongoing change in the forest products industry as new technology displaces workers, as non-competitive facilities are closed, as timber harvests are reduced toward sustained yield levels, and as more of the forested landscape is converted to other uses.

- 
5. **Negative economic trends in the forest products industry have already led Aroostook, Piscataquis, and Penobscot Counties to face stagnant or declining populations.** New sources of economic vitality must be developed or the region will face ongoing decline. Creation of a new Maine Woods National Park represents an action that could contribute significantly to this transition to a more diverse and sustainable economy. National Parks have successfully played this role in other parts of the nation, helping to maintain economic vitality while offsetting unavoidable declines in employment opportunities in the traditional natural resource sectors.
  6. **The impact of the proposed Maine Woods National Park on forest products employment would be quite modest.** Over a period of a decade or more Maine's timber harvests would decline by about 11 percent because of the Park. Put differently, almost 90 percent of Maine's harvest would be unaffected by the Park. Forest products employment for Maine citizens would decline even less than timber harvest because many logging jobs are now filled by Canadian workers, because a significant percentage of saw-log harvest is exported unprocessed from Maine, and because a significant percentage of the wood fiber processed in Maine mills is imported.
  7. **Claims that the proposed Maine Woods National Park would cost a billion dollars per year in lost economic activity are exaggerations that are not based on accurate economic analysis.** They begin with misstatements of how important forest products are as a source of jobs and incomes in Maine and then apply unrealistic "multipliers" to those inflated estimates. With or without the proposed Park, forest products will remain an important, but shrinking, part of the Maine economy. The economic vitality stimulated by a Maine Woods National Park would help offset the inevitable shrinkage in the forest products sector of the Maine economy.
  8. **The ability of communities to attract and hold new residents and the economic activity that accompanies residential and business location choices has become an increasingly important aspect of local economic development.** The perceived quality of the living environment, both the social and natural environments, is an important part of a community's economic base. This is amply demonstrated by the economic vitality found along the Maine Coast despite the declines in commercial fishing and other maritime industries. It is also demonstrated by the growth in neighboring New Hampshire and Vermont and in the "resettlement" of the Mountain West. The future economic vitality of northern Maine will partially depend on protecting the region's natural landscapes. There is little evidence that pri-

---

vate management of that landscape primarily for commercial logging and real estate can achieve this objective.

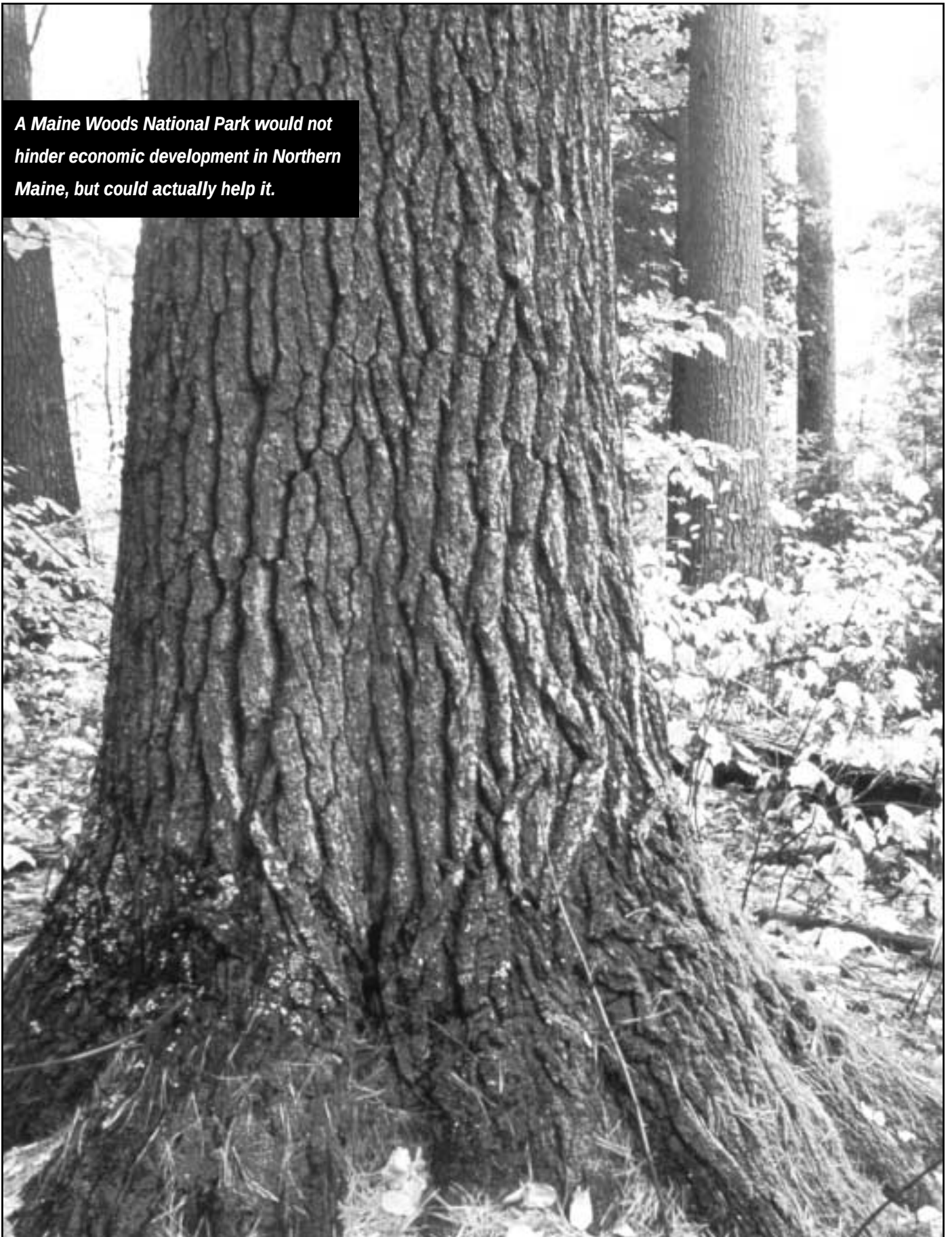
9. **The shift of more than 3 million acres in northern Maine from private to public ownership as a National Park would have only small impacts on state and local government finances.** The federal government has authorized payments in lieu of taxes that are very close to the tree growth taxes currently being collected. In addition, during the first decades of the National Park's existence, the federal government would make transition payments that fully compensate local and state governments for lost tax revenues. The combined impact of these always represents a net gain in government revenue. These gains (and any "losses" after the transition payments cease) would be very small and would be more than offset by projected growth in total local government revenues in the Park counties.
10. **If the Maine Woods National Park is not created, the lands of the region will probably continue to be controlled predominantly by absentee industrial and institutional interests** that will increasingly be pressured to charge user access fees to Maine citizens and other visitors. In contrast, judging by the access fees charged at Acadia and other National Parks, the fees charged by a Maine Woods National Park could be substantially lower, reducing the economic barriers to enjoyment of those wildlands by the public. In addition, based on the requirement of the law and the experience at other National Parks, managers of the proposed Maine Woods National Park would involve Maine citizens in their management decisions.
11. **The character and quality of the small towns that would be gateways to the proposed Maine Woods National Park do not have to be sacrificed to crowding and over-development.** Experiences with existing National Parks indicate that communities can control the adverse effects of large numbers of visitors if they wish to do so. Indeed, National Parks can improve rather than damage overall quality of life.

In closing, many difficult and important decisions affecting the long-term future of the Maine Woods will be made in the coming years. Based on the analysis undertaken for this study and our findings, it seems prudent to keep all options open and "on the table." We have analyzed some of the key issues related to the economic impacts of creating a new Maine Woods National Park and Preserve and concluded that such an action could have a net positive impact on northern Maine and the state as a whole. While there are both advantages and disadvantages we have not analyzed, it appears quite possible that the benefits of creating

---

such a Park could substantially outweigh the costs. The most cautious and open-minded course would be to conduct a full, independent feasibility study in order to evaluate this possibility. Such a full feasibility study should make use of both state and federal government expertise, the academic expertise of Maine's and the nation's universities, the full involvement of Maine's citizens, both those living in the immediate vicinity of the proposed Park as well as elsewhere in the state, and comments from citizens elsewhere in the nation who would be asked to pay most of the monetary costs associated with creating such a National Park. A full feasibility study could analyze in detail the full range of costs and benefits, leaving Maine's residents better situated to evaluate the alternative public policies available to stabilize and renew the communities and economies of northern Maine.

*A Maine Woods National Park would not hinder economic development in Northern Maine, but could actually help it.*





## APPENDIX A THE 22 LARGE NATIONAL PARKS ANALYZED AND THEIR COUNTIES

| National Park     | Counties                               | State |
|-------------------|----------------------------------------|-------|
| Big Bend          | Brewster, TX                           | TX    |
| Big Cypress       | Collier, Monroe, FL                    | FL    |
| Canyonlands       | Grand, San Juan, Garfield              | UT    |
| Death Valley      | Inyo, CA, Nye, NV                      | CA-NV |
| Everglades        | Dade, Collier, Monroe, FL              | FL    |
| Glacier           | Flathead, Glacier, MT                  | MT    |
| Glen Canyon       | Mohave, AZ, Kane, Wayne & Garfield, UT | AZ-UT |
| Grand Canyon      | Mohave and Coconino, AZ                | AZ    |
| Grand Teton       | Teton, WY                              | WY    |
| Great Smoky       | Blount, Haywood, Swain, NC, Sevier, TN | NC-TN |
| Isle Royale       | Houghton, Keweenaw, MI                 | MI    |
| Joshua Tree       | Riverside, San Bernardino, CA          | CA    |
| Kings Canyon      | Fresno, Tulare, Inyo, CA               | CA    |
| Lake Mead         | Clark, NV, Mohave, AZ                  | NV-AZ |
| Mojave Desert     | San Bernardino, CA                     | CA    |
| North Cascade     | Chelan, Okanogan, Skagit, Whatcom, WA  | WA    |
| Olympic           | Clallam, Jefferson, Manson, WA         | WA    |
| Organ Pipe Cactus | Pima, AZ                               | AZ    |
| Rocky Mountain    | Boulder, Grand, Larimer, CO            | CO    |
| Sequoia           | Tulare, Inyo, CA                       | CA    |
| Yellowstone       | Gallatin, Park, MT, Park, Teton, WY    | MT-WY |
| Yosemite          | Madera, Mariposa, Mono, Tuolumne, CA   | CA    |

**APPENDIX B**  
**TAXABLE LAND & PROPERTY TAXES IN NORTHERN MAINE'S UNORGANIZED TERRITORIES BY COUNTY—2000 (PRELIMINARY)**

|                                                 | <b>Aroostook</b> | <b>Penobscot</b> | <b>Piscataquis</b> | <b>Somerset</b> | <b>All</b>      |
|-------------------------------------------------|------------------|------------------|--------------------|-----------------|-----------------|
| Tax Rate                                        | 0.00707          | 0.00962          | 0.00702            | 0.00717         |                 |
| Taxable Land Value                              | \$347,605,942    | \$137,189,075    | \$356,155,025      | \$368,366,907   | \$1,209,316,949 |
| Exempt Land Value                               | \$23,576,347     | \$8,178,152      | \$129,749,729      | \$27,779,783    | \$189,284,011   |
| Taxable Tree Growth Value                       | \$322,618,427    | \$95,651,882     | \$269,455,037      | \$217,127,215   | \$904,852,561   |
| Other Taxable Value (Non-Tree Growth)           | \$24,987,515     | \$41,537,193     | \$86,699,988       | \$151,239,692   | \$304,464,388   |
| Total Taxable Acres                             | 2,470,966        | 773,772          | 1,732,086          | 1,628,782       | 6,605,607       |
| Total Exempt Acres                              | 76,030           | 23115            | 401,194            | 66,573          | 566,911         |
| Total Tree Growth Acres                         | 2,435,050        | 746,108          | 1,713,849          | 1,577,500       | 6,472,506       |
| Other Taxable Acres (Non-Tree Growth)           | 35,916           | 27,665           | 18,237             | 51,282          | 133,101         |
| Taxable Land Value/Acre                         | \$140.68         | \$177.30         | \$205.62           | \$226.16        | \$183.07        |
| Taxable Tree Growth Value/Acre                  | \$132.49         | \$128.20         | \$157.22           | \$137.64        | \$139.80        |
| Exempt Land Value/Acre                          | \$310            | \$354            | \$323              | \$417           | \$334           |
| Other Land (Non-Tree Growth) Value/Acre         | \$696            | \$1,501          | \$4,754            | \$2,949         | \$2,287         |
| Exempt Value as % Total Taxable & Exempt Value  | 6.40%            | 6.00%            | 36.40%             | 7.50%           | 15.70%          |
| Tree Growth Value as % Total Taxable Value      | 92.80%           | 69.70%           | 75.70%             | 58.90%          | 74.80%          |
| Other Taxable Value as % of Total Taxable Value | 7.20%            | 30.30%           | 24.30%             | 41.10%          | 25.20%          |
| Exempt Acres as % Taxable & Exempt Acres        | 3.00%            | 2.90%            | 18.80%             | 3.90%           | 7.90%           |
| Tree Growth Acres as % Total Taxable Acres      | 98.50%           | 96.40%           | 98.90%             | 96.90%          | 98.00%          |
| Other Acres as a % of Total Taxable Acres       | 1.50%            | 3.60%            | 1.10%              | 3.10%           | 2.00%           |

Source: Maine Bureau of Taxation, 2000 County Summaries for Unorganized Territories (preliminary)

| UNORGANIZED TOWNSHIPS AFFECTED BY PROPOSED MAINE WOODS PARK |   |       |        |          |            |             |
|-------------------------------------------------------------|---|-------|--------|----------|------------|-------------|
| Township                                                    |   | Code  | Acres  | % in MWP | Ac. in MWP | County      |
| 'T9 R8 WELS'                                                | 1 | 3828  | 23,490 | 25%      | 5,873      | Aroostook   |
| 'T11 R12 WELS'                                              | 1 | 3839  | 23,592 | 10%      | 2,359      | Aroostook   |
| 'T11 R13 WELS'                                              | 1 | 3840  | 23,878 | 30%      | 7,163      | Aroostook   |
| 'Williamsburg Twp'                                          | 2 | 21827 | 16,362 | 65%      | 10,636     | Piscataquis |
| 'Barnard Twp'                                               | 2 | 21892 | 16,121 | 65%      | 10,479     | Piscataquis |
| 'T4 R9 NWP'                                                 | 2 | 21845 | 25,498 | 10%      | 2,550      | Piscataquis |
| 'T5 R9 NWP'                                                 | 2 | 21853 | 22,133 | 100%     | 22,133     | Piscataquis |
| 'Katahdin Iron Works Twp'                                   | 2 | 21812 | 25,554 | 100%     | 25,554     | Piscataquis |
| 'T7 R9 NWP'                                                 | 2 | 21865 | 22,359 | 100%     | 22,359     | Piscataquis |
| 'Elliottsville Twp'                                         | 2 | 21893 | 33,468 | 100%     | 33,468     | Piscataquis |
| 'TB R10 WELS'                                               | 2 | 21830 | 18,606 | 100%     | 18,606     | Piscataquis |
| 'TB R11 WELS'                                               | 2 | 21831 | 33,159 | 100%     | 33,159     | Piscataquis |
| 'Bowdoin College Grant East Twp'                            | 2 | 21802 | 28,296 | 100%     | 28,296     | Piscataquis |
| 'Bowdoin College Grant West Twp'                            | 2 | 21803 | 28,112 | 100%     | 28,112     | Piscataquis |
| 'Little Squaw Twp'                                          | 2 | 21816 | 23,960 | 45%      | 10,782     | Piscataquis |
| 'TA R10 WELS'                                               | 2 | 21828 | 23,589 | 100%     | 23,589     | Piscataquis |
| 'TA R11 WELS'                                               | 2 | 21829 | 24,644 | 100%     | 24,644     | Piscataquis |
| 'Shawtown Twp'                                              | 2 | 21823 | 26,744 | 100%     | 26,744     | Piscataquis |
| 'Beaver Cove'                                               | 2 | 21037 | 20,790 | 80%      | 16,632     | Piscataquis |
| 'Big Squaw Twp'                                             | 2 | 21801 | 22,466 | 80%      | 17,973     | Piscataquis |
| 'Frentchtown Twp'                                           | 2 | 21809 | 23,751 | 100%     | 23,751     | Piscataquis |
| 'Lily Bay Twp'                                              | 2 | 21815 | 22,832 | 100%     | 22,832     | Piscataquis |
| 'T1 R9 WELS'                                                | 2 | 21833 | 23,248 | 65%      | 15,111     | Piscataquis |
| 'T1 R10 WELS'                                               | 2 | 21834 | 23,313 | 100%     | 23,313     | Piscataquis |
| 'T1 R11 WELS'                                               | 2 | 21835 | 24,050 | 100%     | 24,050     | Piscataquis |
| 'T1 R12 WELS'                                               | 2 | 21836 | 23,555 | 100%     | 23,555     | Piscataquis |
| 'T1 R13 WELS'                                               | 2 | 21814 | 22,670 | 100%     | 22,670     | Piscataquis |
| 'Spencer Bay Twp'                                           | 2 | 21825 | 24,060 | 100%     | 24,060     | Piscataquis |
| 'T2 R10 WELS'                                               | 2 | 21838 | 24,987 | 100%     | 24,987     | Piscataquis |
| 'Rainbow Twp'                                               | 2 | 21822 | 24,551 | 100%     | 24,551     | Piscataquis |
| 'T2 R12 WELS'                                               | 2 | 21839 | 23,520 | 100%     | 23,520     | Piscataquis |
| 'T2 R13 WELS'                                               | 2 | 21840 | 23,236 | 100%     | 23,236     | Piscataquis |
| 'TX R14 WELS'                                               | 2 | 21832 | 6,352  | 100%     | 6,352      | Piscataquis |
| 'East Middlesex Canal Grant Twp'                            | 2 | 21808 | 24,504 | 100%     | 24,504     | Piscataquis |
| 'Days Academy Grant Twp'                                    | 2 | 21806 | 16,245 | 100%     | 16,245     | Piscataquis |
| 'Kineo Twp'                                                 | 2 | 21813 | 1,143  | 100%     | 1,143      | Piscataquis |
| Mt. Katahdin Twp (Baxter)                                   | 2 |       | 22,000 | 0%       | 0          | Piscataquis |
| T3 R10 WELS (Baxter)                                        | 2 |       | 24,000 | 0%       | 0          | Piscataquis |
| T4 R9 WELS (Baxter)                                         | 2 |       | 17,350 | 0%       | 0          | Piscataquis |
| T5 R9 WELS (Baxter)                                         | 2 |       | 24,000 | 0%       | 0          | Piscataquis |
| T5 R10 WELS (Baxter)                                        | 2 |       | 24,000 | 0%       | 0          | Piscataquis |
| Trout Brook Twp (Baxter)                                    | 2 |       | 22,000 | 0%       | 0          | Piscataquis |
| T6 R10 WELS (Baxter)                                        | 2 |       | 24,000 | 0%       | 0          | Piscataquis |
| T2 R9 WELS (Baxter Portion)                                 | 2 | 21837 | 7,000  | 0%       | 0          | Piscataquis |
| T4 R10 WELS (Baxter Portion)                                | 2 | 21847 | 23,000 | 0%       | 0          | Piscataquis |
| 'T2 R9 WELS'                                                | 2 | 21837 | 17,352 | 100%     | 17,352     | Piscataquis |
| T4 R10 WELS'                                                | 2 | 21847 | 852    | 100%     | 852        | Piscataquis |
| 'T3 R11 WELS'                                               | 2 | 21842 | 22,190 | 100%     | 22,190     | Piscataquis |
| 'T3 R12 WELS'                                               | 2 | 21843 | 23,700 | 100%     | 23,700     | Piscataquis |
| 'T3 R13 WELS'                                               | 2 | 21844 | 24,422 | 100%     | 24,422     | Piscataquis |
| 'Lobster Twp'                                               | 2 | 21817 | 23,903 | 100%     | 23,903     | Piscataquis |
| 'Northeast Carry Twp'                                       | 2 | 21820 | 24,949 | 100%     | 24,949     | Piscataquis |
| 'T4 R11 WELS'                                               | 2 | 21848 | 27,666 | 100%     | 27,666     | Piscataquis |
| 'T4 R12 WELS'                                               | 2 | 21849 | 26,565 | 100%     | 26,565     | Piscataquis |
| 'T4 R13 WELS'                                               | 2 | 21850 | 26,357 | 100%     | 26,357     | Piscataquis |
| 'T4 R14 WELS'                                               | 2 | 21851 | 27,916 | 100%     | 27,916     | Piscataquis |
| 'T4 R15 WELS'                                               | 2 | 21852 | 23,068 | 100%     | 23,068     | Piscataquis |
| 'T5 R11 WELS'                                               | 2 | 21855 | 24,897 | 100%     | 24,897     | Piscataquis |
| 'T5 R12 WELS'                                               | 2 | 21856 | 23,610 | 100%     | 23,610     | Piscataquis |
| T5 R13 WELS (Chesuncook)                                    | 2 | 21804 | 23,475 | 100%     | 23,475     | Piscataquis |
| 'T5 R14 WELS'                                               | 2 | 21857 | 23,826 | 100%     | 23,826     | Piscataquis |
| 'T5 R15 WELS'                                               | 2 | 21858 | 22,954 | 100%     | 22,954     | Piscataquis |
| 'T6 R11 WELS'                                               | 2 | 21860 | 24,969 | 100%     | 24,969     | Piscataquis |
| 'T6 R12 WELS'                                               | 2 | 21861 | 24,141 | 100%     | 24,141     | Piscataquis |
| 'T6 R13 WELS'                                               | 2 | 21862 | 23,822 | 100%     | 23,822     | Piscataquis |
| 'T6 R14 WELS'                                               | 2 | 21863 | 24,552 | 100%     | 24,552     | Piscataquis |
| 'T7 R9 WELS'                                                | 2 | 21866 | 24,935 | 100%     | 24,935     | Piscataquis |
| 'T7 R10 WELS'                                               | 2 | 21867 | 25,499 | 100%     | 25,499     | Piscataquis |
| 'T7 R11 WELS'                                               | 2 | 21868 | 25,475 | 100%     | 25,475     | Piscataquis |
| 'T7 R12 WELS'                                               | 2 | 21869 | 24,466 | 100%     | 24,466     | Piscataquis |
| 'T7 R13 WELS'                                               | 2 | 21870 | 24,915 | 100%     | 24,915     | Piscataquis |
| 'T7 R14 WELS'                                               | 2 | 21871 | 25,525 | 100%     | 25,525     | Piscataquis |
| 'T7 R15 WELS'                                               | 2 | 21872 | 25,036 | 80%      | 20,029     | Piscataquis |
| 'T8 R9 WELS'                                                | 2 | 21873 | 24,814 | 100%     | 24,814     | Piscataquis |
| 'T8 R10 WELS'                                               | 2 | 21874 | 25,469 | 100%     | 25,469     | Piscataquis |
| 'T8 R11 WELS'                                               | 2 | 21875 | 25,178 | 100%     | 25,178     | Piscataquis |
| 'Soper Mountain Twp'                                        | 2 | 21824 | 23,876 | 100%     | 23,876     | Piscataquis |
| 'Eagle Lake Twp'                                            | 2 | 21807 | 24,506 | 100%     | 24,506     | Piscataquis |
| 'T8 R14 WELS'                                               | 2 | 21876 | 24,650 | 100%     | 24,650     | Piscataquis |
| 'T8 R15 WELS'                                               | 2 | 21877 | 24,132 | 85%      | 20,512     | Piscataquis |
| 'T9 R9 WELS'                                                | 2 | 21878 | 23,769 | 30%      | 7,131      | Piscataquis |
| 'T9 R10 WELS'                                               | 2 | 21879 | 24,961 | 65%      | 16,225     | Piscataquis |

**UNORGANIZED TOWNSHIPS AFFECTED BY PROPOSED MAINE WOODS PARK (CONTINUED)**

| Township                            |   | Code  | Acres  | % in MWP | Ac. in MWP | County      |
|-------------------------------------|---|-------|--------|----------|------------|-------------|
| 'T9 R11 WELS'                       | 2 | 21880 | 24,018 | 100%     | 24,018     | Piscataquis |
| 'T9 R12 WELS'                       | 2 | 21881 | 23,242 | 100%     | 23,242     | Piscataquis |
| 'T9 R13 WELS'                       | 2 | 21882 | 24,051 | 100%     | 24,051     | Piscataquis |
| 'T9 R14 WELS'                       | 2 | 21883 | 23,899 | 100%     | 23,899     | Piscataquis |
| 'T9 R15 WELS'                       | 2 | 21884 | 24,254 | 85%      | 20,616     | Piscataquis |
| 'T10 R10 WELS'                      | 2 | 21886 | 25,479 | 5%       | 1,274      | Piscataquis |
| 'T10 R11 WELS'                      | 2 | 21887 | 24,537 | 70%      | 17,176     | Piscataquis |
| 'T10 R12 WELS'                      | 2 | 21888 | 23,800 | 100%     | 23,800     | Piscataquis |
| 'T10 R13 WELS'                      | 2 | 21889 | 23,841 | 80%      | 19,072     | Piscataquis |
| 'T10 R14 WELS'                      | 2 | 21890 | 23,510 | 55%      | 12,931     | Piscataquis |
| 'T10 R15 WELS'                      | 2 | 21891 | 23,601 | 35%      | 8,260      | Piscataquis |
| 'TA R7 WELS'                        | 3 | 19814 | 13,131 | 5%       | 657        | Penobscot   |
| 'T3 Indian Purchase Twp'            | 3 | 19806 | 20,174 | 20%      | 4,035      | Penobscot   |
| 'T4 Indian Purchase Twp'            | 3 | 19807 | 27,999 | 80%      | 22,399     | Penobscot   |
| 'Veazie Gore'                       | 3 | 19813 | 1,136  | 100%     | 1,136      | Penobscot   |
| 'Long A Twp'                        | 3 | 19809 | 23,916 | 40%      | 9,567      | Penobscot   |
| 'T1 R6 WELS'                        | 3 | 19815 | 25,344 | 10%      | 2,534      | Penobscot   |
| 'Grindstone Twp'                    | 3 | 19802 | 24,238 | 90%      | 21,814     | Penobscot   |
| 'T1 R8 WELS'                        | 3 | 19816 | 18,712 | 50%      | 9,356      | Penobscot   |
| 'Herseystown Twp'                   | 3 | 19803 | 26,451 | 40%      | 10,580     | Penobscot   |
| 'Soldiertown Twp'                   | 3 | 19811 | 27,076 | 100%     | 27,076     | Penobscot   |
| T2 R8 WELS                          | 3 | 19818 | 26,193 | 100%     | 26,193     | Penobscot   |
| 'T3 R7 WELS'                        | 3 | 19821 | 25,900 | 100%     | 25,900     | Penobscot   |
| 'T3 R8 WELS'                        | 3 | 19822 | 24,680 | 100%     | 24,680     | Penobscot   |
| 'T4 R7 WELS'                        | 3 | 19824 | 26,027 | 100%     | 26,027     | Penobscot   |
| 'T4 R8 WELS'                        | 3 | 19825 | 24,314 | 100%     | 24,314     | Penobscot   |
| 'Mount Chase'                       | 3 | 19450 | 23,992 | 50%      | 11,996     | Penobscot   |
| 'T5 R7 WELS'                        | 3 | 19827 | 24,156 | 100%     | 24,156     | Penobscot   |
| 'T5 R8 WELS'                        | 3 | 19828 | 24,514 | 100%     | 24,514     | Penobscot   |
| 'T6 R6 WELS'                        | 3 | 19829 | 22,343 | 20%      | 4,469      | Penobscot   |
| 'T6 R7 WELS'                        | 3 | 19830 | 23,218 | 100%     | 23,218     | Penobscot   |
| 'T6 R8 WELS'                        | 3 | 19831 | 22,626 | 85%      | 19,232     | Penobscot   |
| 'T7 R6 WELS'                        | 3 | 19832 | 23,947 | 70%      | 16,763     | Penobscot   |
| 'T7 R7 WELS'                        | 3 | 19833 | 23,900 | 100%     | 23,900     | Penobscot   |
| 'T7 R8 WELS'                        | 3 | 19834 | 24,291 | 100%     | 24,291     | Penobscot   |
| 'T8 R6 WELS'                        | 3 | 19835 | 24,060 | 10%      | 2,406      | Penobscot   |
| 'T8 R7 WELS'                        | 3 | 19836 | 23,649 | 50%      | 11,824     | Penobscot   |
| 'T8 R8 WELS'                        | 3 | 19837 | 23,793 | 95%      | 22,604     | Penobscot   |
| 'Indian Stream Twp'                 | 4 | 25828 | 11,820 | 50%      | 5,910      | Somerset    |
| 'Chase Stream Twp'                  | 4 | 25816 | 25,754 | 5%       | 1,288      | Somerset    |
| 'Sapling Twp'                       | 4 | 25851 | 17,948 | 75%      | 13,461     | Somerset    |
| 'Sandbar Tract Twp'                 | 4 | 25848 | 735    | 100%     | 735        | Somerset    |
| 'Taunton & Raynham Acad. Grant Twp' | 4 | 25803 | 15,262 | 75%      | 11,446     | Somerset    |
| 'Sandwich Academy Grant Twp'        | 4 | 25849 | 15,030 | 30%      | 4,509      | Somerset    |
| 'Long Pond Twp'                     | 4 | 25833 | 27,985 | 20%      | 5,597      | Somerset    |
| 'Rockwood Strip T1 R1 NBKP'         | 4 | 25844 | 5,017  | 75%      | 3,763      | Somerset    |
| 'Rockwood Strip T2 R1 NBKP'         | 4 | 25845 | 5,568  | 100%     | 5,568      | Somerset    |
| 'Tomhegan Twp'                      | 4 | 25857 | 23,120 | 95%      | 21,964     | Somerset    |
| 'Brassua Twp'                       | 4 | 25814 | 25,548 | 100%     | 25,548     | Somerset    |
| 'Thorndike Twp'                     | 4 | 25856 | 22,980 | 50%      | 11,490     | Somerset    |
| 'Little W Twp'                      | 4 | 25832 | 3,052  | 100%     | 3,052      | Somerset    |
| 'Big W Twp'                         | 4 | 25810 | 11,613 | 100%     | 11,613     | Somerset    |
| 'West Middlesex Canal Grant'        | 4 | 25859 | 24,288 | 100%     | 24,288     | Somerset    |
| 'Soldiertown Twp.'                  | 4 | 25853 | 30,138 | 100%     | 30,138     | Somerset    |
| 'Alder Brook Twp'                   | 4 | 25801 | 22,772 | 5%       | 1,139      | Somerset    |
| 'Bald Mountain Twp T4 R3'           | 4 | 25806 | 25,369 | 40%      | 10,148     | Somerset    |
| 'Sandy Bay Twp'                     | 4 | 25850 | 19,159 | 60%      | 11,495     | Somerset    |
| 'Seboomook Twp'                     | 4 | 25852 | 26,677 | 100%     | 26,677     | Somerset    |
| 'Plymouth Twp'                      | 4 | 25842 | 25,615 | 100%     | 25,615     | Somerset    |
| 'Pittston Academy Grant'            | 4 | 25841 | 28,831 | 100%     | 28,831     | Somerset    |
| 'Hammond Twp'                       | 4 | 25825 | 23,639 | 100%     | 23,639     | Somerset    |
| 'Prentiss Twp.'                     | 4 | 25843 | 17,676 | 100%     | 17,676     | Somerset    |
| 'Blake Gore'                        | 4 | 25811 | 3,708  | 100%     | 3,708      | Somerset    |
| T4 R16 WELS (Elm Stream)            | 4 | 25822 | 19,406 | 100%     | 19,406     | Somerset    |
| 'T4 R17 WELS'                       | 4 | 25864 | 24,577 | 100%     | 24,577     | Somerset    |
| 'Comstock Twp'                      | 4 | 25817 | 27,985 | 100%     | 27,985     | Somerset    |
| 'Dole Brook Twp'                    | 4 | 25820 | 25,726 | 100%     | 25,726     | Somerset    |
| 'T4 R5 NBKP'                        | 4 | 25863 | 8,754  | 100%     | 8,754      | Somerset    |
| 'Russell Pond Twp'                  | 4 | 25846 | 23,294 | 100%     | 23,294     | Somerset    |
| 'T5 R17 WELS'                       | 4 | 25867 | 22,714 | 100%     | 22,714     | Somerset    |
| 'T5 R18 WELS'                       | 4 | 25868 | 22,992 | 100%     | 22,992     | Somerset    |
| 'T5 R19 WELS'                       | 4 | 25869 | 17,112 | 95%      | 16,257     | Somerset    |
| 'T5 R20 WELS'                       | 4 | 25870 | 21,330 | 80%      | 17,064     | Somerset    |
| 'Saint John Twp'                    | 4 | 25847 | 24,178 | 100%     | 24,178     | Somerset    |
| 'T6 R17 WELS'                       | 4 | 25871 | 23,915 | 100%     | 23,915     | Somerset    |
| 'T6 R18 WELS'                       | 4 | 25872 | 24,494 | 80%      | 19,595     | Somerset    |
| 'Big Six Twp'                       | 4 | 25808 | 27,567 | 50%      | 13,783     | Somerset    |
| 'T7 R16 WELS'                       | 4 | 25873 | 24,934 | 60%      | 14,960     | Somerset    |
| 'T7 R17 WELS'                       | 4 | 25874 | 24,333 | 75%      | 18,250     | Somerset    |
| 'T7 R18 WELS'                       | 4 | 25875 | 24,811 | 30%      | 7,443      | Somerset    |
| 'T8 R16 WELS'                       | 4 | 25877 | 24,379 | 5%       | 1,219      | Somerset    |
| 'T9 R16 WELS'                       | 4 | 25881 | 25,064 | 5%       | 1,253      | Somerset    |

**TOWNS AFFECTED BY THE PROPOSED MAINE WOODS NATIONAL PARK  
CHANGE IN THE MUNICIPAL REVENUES DUE TO THE PROPOSED NATIONAL PARK**

| Municipality     | County      | Estimated Town Area Potentially Included in the Proposed Park (acres) | Tree Growth Assessed Value of Land in Proposed Park | %of Total Municipal Valuation Associated with Park Land | Tax Rate (Year 2000) | Estimated Taxes on Park Affected Municipal Lands (Year 2000) | Estimated Taxes per Acre (Year 2000) | 100% PILT Payment per Acre (FY 2001 est.) |
|------------------|-------------|-----------------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------|----------------------|--------------------------------------------------------------|--------------------------------------|-------------------------------------------|
| Greenville       | Piscataquis | 22,000                                                                | \$1,752,564                                         | 1.5%                                                    | 0.01840              | \$32,247                                                     | \$2.93                               | \$0.71                                    |
| Brownville       | Piscataquis | 20,000                                                                | \$313,688                                           | 1.0%                                                    | 0.02040              | \$6,399                                                      | \$3.20                               | \$0.71                                    |
| Bowerbank        | Piscataquis | 22,000                                                                | \$743,196                                           | 2.7%                                                    | 0.00450              | \$3,344                                                      | \$0.61                               | \$0.71                                    |
| Willimantic      | Piscataquis | 20,000                                                                | \$1,432,617                                         | 4.2%                                                    | 0.01000              | \$14,326                                                     | \$1.43                               | \$0.71                                    |
| Monson           | Piscataquis | 20,000                                                                | \$1,140,749                                         | 5.7%                                                    | 0.01530              | \$17,453                                                     | \$2.18                               | \$0.71                                    |
| Shirley          | Piscataquis | 20,000                                                                | \$665,352                                           | 5.0%                                                    | 0.01196              | \$7,958                                                      | \$1.59                               | \$0.71                                    |
| Subtotal         | Piscataquis | 124,000                                                               | \$6,048,168                                         | 2.4%                                                    |                      | \$81,728                                                     | \$1.97                               | \$0.71                                    |
| East Millinocket | Penobscot   | 1,829                                                                 | \$188,733                                           | 0.1%                                                    | 0.01559              | \$2,942                                                      | \$1.61                               | \$1.74                                    |
| Medway           | Penobscot   | 20,000                                                                | \$475,246                                           | 1.0%                                                    | 0.01750              | \$8,317                                                      | \$1.66                               | \$1.74                                    |
| Stacyville       | Penobscot   | 20,000                                                                | \$713,988                                           | 2.4%                                                    | 0.01800              | \$12,852                                                     | \$1.29                               | \$1.74                                    |
| Patten           | Penobscot   | 20,000                                                                | \$553,373                                           | 2.2%                                                    | 0.02045              | \$11,316                                                     | \$1.89                               | \$1.74                                    |
| Subtotal         | Penobscot   | 61,829                                                                | \$1,931,341                                         | 1.9%                                                    |                      | \$35,427                                                     | \$1.55                               | \$1.74                                    |
| Total of Above   |             | 185,829                                                               | \$7,979,509                                         | 2.3%                                                    |                      | \$117,155                                                    | \$1.82                               | \$1.74                                    |

| Municipality     | County      | PILT Payments on Land in Park 100% PILT | Additional Federal Payments during the 1st 15 Years | Growth in Municipal Rev. Over 15 Years at 0.05%/yr | Net Annual Impact During the 1st 15 Years 100% PILT | Net Impact as % Total Property Tax Revenues 100% PILT | Net Annual Impact During the 1st 15 Years 50% PILT | Net Impact as % Total Property Tax Revenues 50% PILT |
|------------------|-------------|-----------------------------------------|-----------------------------------------------------|----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|----------------------------------------------------|------------------------------------------------------|
| Greenville       | Piscataquis | \$7,845                                 | \$32,247                                            | \$16,686                                           | \$24,531                                            | 1.1%                                                  | \$24,531                                           | 1.1%                                                 |
| Brownville       | Piscataquis | \$1,426                                 | \$6,399                                             | \$4,885                                            | \$6,311                                             | 1.0%                                                  | \$6,311                                            | 1.0%                                                 |
| Bowerbank        | Piscataquis | \$3,922                                 | \$3,344                                             | \$949                                              | \$4,871                                             | 3.9%                                                  | \$4,871                                            | 3.9%                                                 |
| Willimantic      | Piscataquis | \$7,132                                 | \$14,326                                            | \$2,572                                            | \$9,703                                             | 2.8%                                                  | \$9,703                                            | 2.8%                                                 |
| Monson           | Piscataquis | \$5,705                                 | \$17,453                                            | \$2,293                                            | \$7,999                                             | 2.6%                                                  | \$7,999                                            | 2.6%                                                 |
| Shirley          | Piscataquis | \$3,566                                 | \$7,958                                             | \$1,206                                            | \$4,772                                             | 3.0%                                                  | \$4,772                                            | 3.0%                                                 |
| Subtotal         | Piscataquis | \$29,596                                | \$81,728                                            | \$28,591                                           | \$58,187                                            | 1.5%                                                  | \$58,187                                           | 1.5%                                                 |
| East Millinocket | Penobscot   | \$3,190                                 | \$2,942                                             | \$29,193                                           | \$32,383                                            | 0.8%                                                  | \$30,788                                           | 0.8%                                                 |
| Medway           | Penobscot   | \$8,720                                 | \$8,317                                             | \$6,236                                            | \$14,957                                            | 1.8%                                                  | \$10,597                                           | 1.3%                                                 |
| Stacyville       | Penobscot   | \$17,441                                | \$12,852                                            | \$4,048                                            | \$21,489                                            | 4.0%                                                  | \$12,769                                           | 2.4%                                                 |
| Patten           | Penobscot   | \$10,464                                | \$11,316                                            | \$3,801                                            | \$14,265                                            | 2.8%                                                  | \$9,033                                            | 1.8%                                                 |
| Subtotal         | Penobscot   | \$39,816                                | \$35,427                                            | \$43,279                                           | \$83,094                                            | 1.4%                                                  | \$63,186                                           | 1.1%                                                 |
| Total of Above   |             | \$69,412                                | \$117,155                                           | \$71,869                                           | \$141,281                                           | 1.5%                                                  | \$127,967                                          | 1.3%                                                 |

Source: 1998 Municipal Valuation Return Statistical Summary, Maine Revenue Services, Augusta, Maine  
FY99 PILT Payment increased by the Consumer Price Index to FY2001 level.

**ESTIMATED PROPERTY TAXES ON UNORGANIZED LAND AFFECTED BY PROPOSED MAINE WOODS NATIONAL PARK - YEAR 2000  
TAXES (PRELIMINARY) ASSUMING AVERAGE COUNTY TREE GROWTH LAND VALUES FOR THE AREA AFFECTED BY THE PARK**

| <b>Area</b>              | <b>Total County Acres</b> | <b>Total County Acres in Unorganized Status</b> | <b>Acres Affected by Park</b> | <b>Distribution of Park Affected Acres by County</b> | <b>Average Taxable Value/Acre (Tree Growth)</b> | <b>Estimated Taxes Paid</b> |
|--------------------------|---------------------------|-------------------------------------------------|-------------------------------|------------------------------------------------------|-------------------------------------------------|-----------------------------|
| Total Four Park Counties | 11,495,680                | 3,665,469                                       | 2,850,030                     | 100.0%                                               | \$148                                           | \$3,123,314                 |
| Total Aroostook County   | 4,270,080                 | 70,961                                          | 15,395                        | 0.5%                                                 | \$132                                           | \$14,421                    |
| Total Piscataquis County | 2,538,880                 | 2,077,856                                       | 1,726,328                     | 60.6%                                                | \$157                                           | \$1,905,321                 |
| Total Penobscot County   | 2,173,440                 | 619,781                                         | 445,641                       | 15.6%                                                | \$128                                           | \$549,602                   |
| Total Somerset County    | 2,513,280                 | 896,872                                         | 662,666                       | 23.3%                                                | \$138                                           | \$653,971                   |

Source: Taxable Land and Property Taxes in Northern Maine's Unorganized Territories by County--2000 (preliminary)

## REFERENCES

- Allen, Scott. 1997. The forest and the trees. *The Boston Globe Magazine* (March 30, 1997).
- Anonymous. n.d. [1996] RESTORE: the economic impacts of a 3.2 million acre national park. Fact sheet distributed by opponents at a community forum on the proposed Maine Woods National Park, Greenville, ME, April 27, 1996.
- Ballard, S., S. Seguino, and C. Colgan. 1994. Economic development in Maine: Strategies and opportunities. *Maine Policy Review* (May):15-25.
- Balter, Keith and Johan Veltkamp. 1987. Report on the demand for forest products in Maine. Augusta, ME: Prepared by Resource Information Systems, Inc. for the Maine Department of Conservation.
- Bangor Daily News. 1998. The two Maines. *Bangor Daily News* (September 12-18, 1998).
- Bangor Daily News. 2001. Census 2000: Two Maines chasm growing. *Bangor Daily News* (June 16-17, 2001).
- Barker, Don. 1995. RESTORE's plan for northern Maine park is a bad idea. *Lewiston [Maine] Sunday Sun-Journal* (August 27, 1995).
- Barringer, Richard et al. 1987. The western mountains of Maine: Toward balanced growth. Augusta, ME: MaineWatch Institute.
- Branson, John B. 1999. Park a success, as Maine's will be. *Maine Sunday Telegram* (January 3, 1999).
- Benson, Joyce. 1994. Background paper on the economic contribution of Maine's natural resources industries. Augusta, ME: Maine State Planning Office.
- Blanton, Kimberly. November 29, 2000. City-style labor crunch reaches rural Vermont; boom time has firms scrambling. *The Boston Globe*.
- Booth, Douglas E. 1996. Economic development near big wilderness in the western U.S. Unpublished working paper. Milwaukee, WI: Economics Department, Marquette University.
- Booth, Douglas E. 1999. Spatial patterns in the economic development of the mountain West. *Growth and Change* 30 (Summer):384-405.
- Bonnett, Thomas W. 2001. Competing in the new economy: Governance strategies for the digital age. Philadelphia, PA: Xlibris.
- Boyle, Kevin et. 1990. A study of the impact of game and nongame species on Maine's economy. Orono, ME: University of Maine, Department of Agricultural and Resource Economics, Paper 423.
- Burbee, Clark R. August 1, 1994. Letter attached to the Report of the Commission to Study the Future of Maine's Paper Industry. Augusta: ME: Maine Office of Policy and Legal Analysis.
- Burton, Diana M. 1997. An astructural analysis of national forest policy and employment. *American Journal of Agricultural Economics* 79(August):964-974.
- Burton, Diana M. and Peter Berck. 1996. Statistical causation and national forest policy in Oregon. *Forest Science* 42(1):86-92.
- Caldwell, Todd. 2000. The effects of land available for harvest assumptions on Maine timber supply projections. <http://www.megalink.net/~lec/Papers.html>
- Carr, Thomas. 1994. The northern forest economy. In Christopher Klysa and Stephen Trombulak, *The Future of the Northern Forest*. Hanover, NH: University Press of New England.
- Clark, Jeff. 1999. Keep out: New fees to enter the North Woods have sparked a controversy over who is allowed in. *Down East* (October 1999).
- Cole, John. 2000. For sale: Maine Does the widespread sale of the state's timberlands Mean the end of the northern wilderness? *Country Journal* (March/April 1999).
- Commission to Study the Future of Maine's Paper Industry. 1995. Report of the commission to study the future of Maine's paper industry. Augusta: ME: Maine Office of Policy and Legal Analysis.
- Colgan, Charles and Lloyd Irland. 1993 The "sustainability dilemma:" Observations from Maine history. In Richard Barringer (ed), *Toward a Sustainable Maine*. Portland, ME: University of Southern Maine, Muskie Institute of Public Affairs.
- Connors, James F. 1988. Forest for the future. Augusta, ME: Maine Department of Conservation.

- 
- Crompton, John L. et al. 1997. An empirical study of the role of recreation, parks and open space in companies' (re)location decisions. *J. of Park and Recreation Administration* 15(1):37-58.
- Cromartie, John B. 1998. Net migration in the Great Plains increasingly linked to natural amenities and suburbanization. *Rural Development Perspectives* 13(1):27-34.
- Cushman, John H. Jr. 1998. For sale: 5% of Maine, plenty of trees. *The New York Times* (August 11, 1998).
- Daniels, Steven E., William F. Hyde and David N. Wear. 1991. Distributive effects of Forest Service attempts to maintain community stability. *Forest Science* 37(1):245-260.
- Davidson-Peterson Associates. 1997. The economic impact of expenditures by tourists on Franklin County, calendar year 1996. Auburn, ME: Prepared for Androscoggin Valley Council of Governments.
- Dobbs, David and Richard Ober. 1995. The northern forest. White River Junction, VT: Chelsea Green Publishing Company.
- Duffield, John et al. 1997. Review of the National Park Service money generation model. Missoula, MT: Prepared by Bioeconomics Inc. for Yellowstone National Park.
- Duffy-Deno, Kevin T. 1997. The effect of state parks on county economies of the West. *J. of Leisure Research* 29(2).
- Duffy-Deno, Kevin T. 1998. The effect of federal wilderness on county growth in the Intermountain Western United States. *J. of Regional Science* 38(1):109-136.
- Eastern Maine Development Corporation. 1991. Greenville economic profile. Greenville, ME: Greenville Economic Development Office.
- Enterprise Resources Inc. 1991. Greenville forest products study. Greenville, ME: Greenville Economic Development Office.
- Farm operator household income and wealth compare favorably with all U.S. households. 1997. *Rural Conditions and Trends*, 8(2): 79-85.
- Fackelman, G.E. 1996. Maine Woods National Park could benefit the entire state. *Portland Press Herald* (January 12, 1996).
- Field, David B. 1996. Some facts about Maine's forestry sector. Orono, ME: University of Maine, Department of Forest Management.
- Field, David B. 1997. Economic impacts of the proposed Maine Woods National Park. Talk presented at the University of New Hampshire (October 16, 1997).
- Florida, Richard. 2000. Competing in the age of talent: Environment, amenities, and the new economy. A report prepared for the R. K. Mellon Foundation, Heinz Endowments, and Sustainable Pittsburgh. Pittsburgh: H. John Heinz III School of Public Policy and Management, Carnegie Mellon University.
- Forests: The biggest tree sale of all. *The Economist* (November 6, 1999).
- Gadzick, Charles J. et al. 1998. Timber supply outlook for Maine: 1995-2045. Augusta, ME: Maine Department of Conservation, Maine Forest Service.
- Goldsmith, Scott and Stephanie Martin. 2001. ANILCA and the Seward economy.
- Anchorage, AK: Institute of Social and Economic Research, University of Alaska.
- Goodstein, Eban. 1999. The trade-off myth: Fact and fiction about jobs and the environment. Washington DC: Island Press.
- Gough, Paul J. (ed). 2000. Outlook 2000: Central Maine on the edge of the millennium. *The Piscataquis Observer* [Dover-Foxcroft] and *The Weekly Newspaper* [Bangor].
- Governors' Task Force. 1990. The northern forest lands: A strategy for their future. A report issued in conjunction with Harper et al, Northern Forest Lands Study.
- Greenville Office of Economic Development. 1991. The Moosehead Lake region tourism marketing strategy. Greenville, ME: Greenville Office of Economic Development.
- Griffith, Douglas M. and Carol L. Alerich. 1996. Forest statistics for Maine, 1995. USDA Forest Service, Northeastern Forest Experiment Station, Resource Bulletin NE-135.
- Hamilton, Michael S. 2001. Parks, wilderness help boost growth. *Maine Sunday Telegram* (June 10, 2001).
- Harden, Blaine. 1998. Who best to protect the North Woods? *The Washington Post* (August 24, 1998).
- Harper, Stephen E., Laura L. Falk and Edward W. Rankin. 1990. Northern forest lands study. Rutland, VT: USDA, Forest Service.

- 
- Heinrich, Bernd and David B. Field. 2001. Whose woods? Does Maine need a new national park? *Northern Woodlands* (Summer 2001).
- Howe, Jim et al. 1997. Balancing nature and commerce in gateway communities. Washington DC: Island Press.
- Hyde, Christopher. 1999. A 3-million acre national park in Maine? You bet. *Mainebiz* 5(7):1 (June 1999).
- Irland, Lloyd C. 1986. Future employment in the Maine Woods. In *Proceedings, A Forest Based Economy 1984 Blaine House Conference on Forestry*, pp. 78-108. Augusta, ME: Maine Department of Conservation.
- Irland, Lloyd C. 1996. Land, timber, and recreation in Maine's northwoods. Orono, ME: University of Maine. Maine Agricultural and Forest Experiment Station Miscellaneous Publication 730.
- Irland, Lloyd C. 1999. The Northeast's changing forests. Petersham, MA: Harvard Forest.
- Irland, Lloyd C. 2000. Should the log and wood products trade be regulated in the northeastern borderlands? *Canadian-American Public Policy* 42 (July) Orono, ME: Canadian-American Center, University of Maine.
- Irland, Lloyd C. 2000. Northeastern paper mill towns economic trends and economic development response. Bangor, ME: Prepared for the Eastern Maine Development Corporation.
- Irland, Lloyd C. 2001. Northeastern paper mill towns economic trends and economic development responses. Orono, ME: Forthcoming as a Maine Agricultural and Forest Experiment Station Miscellaneous Publication.
- Jaakko Poyry Consulting Inc. 1995. Diagnostic review of the pulp and paper industry in Maine: A report for the Commission to Study the Future of Maine's Paper Industry. Augusta: ME: Maine Office of Policy and Legal Analysis.
- Jackson, David H. and Kenneth Wall. 1995. Mapping and modeling real estate development in rural western Montana. Missoula, MT: University of Montana, School of Forestry. Bolle Center for People and Forests, Discussion Paper No. 2.
- Johnson, J. and R. Rasker. 1993. The role of amenities in business attraction and retention. *Montana Policy Review* 3(2):11-19.
- Kellett, Michael J. 2000. Maine Woods National Park: The best way to restore the wild. *Wild Earth* (Summer):60-64.
- Kellett, Michael J. and James A. St. Pierre. 1996. Gateway to a healthy economy: The proposed Maine Woods National Park and Preserve and the future of the Moosehead region of Maine. Augusta, ME: RESTORE: The North Woods.
- Kimber, Robert. 2001. The case for a North Woods Park. *Down East* (July 2001).
- King, Governor Angus S., Jr. 1998. OneMaine: Rural economic development initiative. Augusta, ME: Maine Department of Economic and Community Development.
- Klyza, Christopher McGory and Stephen C. Trombulak. 1994. The future of the northern forest. Hanover, NH: University Press of New England.
- Land and Water Associates. 1995. Impacts of changes in landownership patterns and development in the LURC jurisdiction on timber production and the state's forest manufacturing economy. Augusta, ME: Prepared for the Maine Land Use Regulation Commission.
- Larsen, Dave and Phil Aust. 2000. Washington mill survey, 1986-1996: Has the sun really set on Washington State's forest products industry? Paper prepared for the 34th Annual Pacific Northwest Regional Economic Conference. Washington State Department of Natural Resources.
- Leadership Maine. 1999. The Maine north woods park debate. Augusta, ME: Prepared by the Leadership Maine Brown Team for the Maine Development Foundation.
- LeMaster, D.C. and J. H. Beuter. 1989. Community stability in forest-based economies. Portland, OR: Timber Press.
- Lewis, David J., Gary L. Hunt and Andrew J. Plantinga. 2001. Public conservation land and employment growth in the northern forest region. Forthcoming in *Land Economics*. Madison, WI: University of Wisconsin.
- Lewis, David and Andrew J. Plantinga. 2001. Public conservation land and economic growth in the northern forest region. Orono, ME: University of Maine. Maine Agricultural and Forest Experiment Station Miscellaneous Publication 748.
- Lindahl, John B. and Andrew J. Plantinga. 1998. Input use in Maine's wood products industry. Orono, ME: University of Maine. Maine Agricultural and Forest Experiment Station Miscellaneous Publication 407.

- 
- Loomis, John B. and Robert Richardson. 2000. Economic values of protecting roadless areas in the United States. A study prepared for The Wilderness Society and the Heritage Forest Campaign. Fort Collins, CO: Colorado State University, Department of Agricultural and Resources Economics.
- Lorah, Paul. 2000. Population growth, economic security, and cultural change in wilderness counties. In David N. Cole and Stephen F. McCool. *Proceedings: Wilderness Science in a Time of Change*. Ogden, UT: USDA, Forest Service, Rocky Mountain Research Station. RMRS-P-15.
- Lunt, Dean. March 26, 2000. A way of life left behind: A year after the closing of Sherman Lumber mill, residents whose roots go back generations reluctantly decide to move on—away from a place the economic boom forgot. *Maine Sunday Telegram*.
- Maine Audubon Society. 1996. *Valuing the nature of Maine*. Falmouth, ME: Maine Audubon Society.
- Maine Audubon Society. n.d. [1996] *Solutions for the future of Maine's woods, waters, wildlife, and hard-working forest communities*. Falmouth, ME: Maine Audubon Society.
- Maine Audubon Society. 2001. *The economic benefits of conservation*. Falmouth, ME: Maine Audubon Society.
- Maine Department of Economic and Community Development. 2001. *State of Maine economic development strategy*. Augusta, ME: Maine Department of Economic and Community Development.
- Maine Forest Service. 1989-1999. *Annual wood processor reports*. Augusta, ME: Maine Department of Conservation.
- Maine Forest Service. 1998. *Timber supply outlook for Maine: 1995-2045*. Augusta, ME: Maine Department of Conservation.
- Maine Forest Service. 2000. *Primary processor mill list*. Augusta, ME: Maine Department of Conservation.
- Maine Forest Service. 2000. *Report of the 1999 annual inventory of Maine's forests*. Augusta, ME: Maine Department of Conservation. [www.state.me.us/doc/mfs/pubs.htm](http://www.state.me.us/doc/mfs/pubs.htm).
- Maine Land Use Regulation Commission. 1983. *Comprehensive land use plan*. Augusta, ME: Maine Department of Conservation.
- Maine Land Use Regulation Commission. 1997. *Comprehensive land use plan*. Augusta, ME: Maine Department of Conservation.
- Maine Development Foundation. 2001. *Measures of Growth: Performance measures and benchmarks to achieve sustainable long-term economic growth for Maine*. Augusta, ME: Maine Economic Growth Council.
- Maine Department of Labor. 1987-1997. *Census of Maine manufacturers*. Augusta, ME: Bureau of Labor Standards, Research and Statistics Division.
- Maine Department of Labor. 1998. *Covered employment and wages by major industry division*. Augusta, ME: Bureau of Labor Standards, Research and Statistics Division.
- Maine Department of Labor. 1999. *Woods wage survey*. Augusta, ME: Bureau of Labor Standards, Division of Labor Market Information Services.
- Maine Department of Labor. 2000. *Labor market digest (June and July)*. Augusta, ME: Bureau of Labor Standards.
- Maine State Planning Office and Maine Department of Conservation. 2000. *Timber harvest, economic, and fiscal impacts of the November 2000 citizens' initiative, "An act regarding forest practices."* Augusta, ME: Maine State Planning Office.
- Maine State Planning Office. 2001. *Fishing, farming and forestry: Resources for the future*. Augusta, ME: Maine State Planning Office.
- Maine State Planning Office. 2001. *Report on the use of incentives to keep land in productive farming, fishing and forestry use*. Augusta, ME: Prepared by Land and Water Resources Council.
- Maine Tomorrow. 1990. *A comprehensive land use plan for the Moosehead Lake region. (Draft)*. Augusta, ME: Prepared for Maine State Planning Office et. al.
- Manning, Robert E. 1990. Do parks make good neighbors? *Park Science* 10(3):19-20.
- Market Decisions, Inc. 1993. *Land Use Regulation Commission profile and projections*. South Portland, ME: Prepared for Maine Department of Conservation, Land Use Regulation Commission.
- Miles, John C. 2000. *Three national parks of the Pacific Northwest*. In Gary E. Machlis and Donald R. Field (eds), *National parks and rural development: Practice and policy in the United States*. Washington DC: Island Press.
- National Park Service. 2000. *Money generation model*. Washington, DC: U.S. Department of the Interior. <http://www.prr.msu.edu/MGM2/MGM2Shortform.xls>.

- 
- National Park Service. 2000. Visitation data. Washington, DC: U.S. Department of the Interior. <http://www2.nature.nps.gov/stats/>.
- National Park Service. 2000. 2001 management policies. Washington, DC: U.S. Department of the Interior. December 2000. NPS D1416. Section 2.1.3. <http://www.nps.gov/refdesk/mp/chapter2.htm>.
- Neavoll, George. 1999. People of North look to their future: Maine Woods National Park could be an economic boon. *Maine Sunday Telegram* (August 1, 1999).
- Niemi, Ernie and Anne Fifield. 2000. Seeing the forest for their green: Economic benefits of forest protection, recreation and restoration. Eugene, OR: ECONorthwest.
- Niemi, Ernie and Ed Whitelaw. 1998. Why the sky did not fall in the Pacific Northwest. Eugene, OR: ECONorthwest.
- Northeastern Forest Alliance. 1990, 1995. The economic importance of Maine's forests. <http://nefa.conknet.com>.
- North East State Foresters Association. 2001. The economic importance of Maine's forests. Concord, NH: North East State Foresters Association.
- Northern Forest Alliance. 1997. Wildlands: A conservation strategy for the northern forest. Montpelier, VT: Northern Forest Alliance.
- Northern Forest Alliance. 1999. Forestry for the future. Montpelier, VT: Northern Forest Alliance.
- Northern Forest Alliance. 2001. Conservation easements in the northern forest: Principles and recommendations for the development of large-scale conservation easements in the northern forest. Montpelier, VT: Northern Forest Alliance.
- Northern Forest Lands Council. 1994. Technical appendix: A compendium of technical research and forum proceedings. Concord, NH: Northern Forest Lands Council.
- Pan Atlantic Consultants and The Irland Group. 1999. Maine logging industry and the bonded labor program: An economic analysis. Augusta, ME: Maine Department of Labor.
- Park proposal won't fly. 1995. Editorial in *The Piscataquis Observer*. Dover-Foxcroft, ME (August 23, 1995).
- Payments in Lieu of Taxes (PILT) Act of 1976 as amended. 31 U.S.C. 6901-6907.
- Phillips, Spencer R. 1993. Forest products manufacturing: Factors and trends affecting the working forest. Washington, DC: The Wilderness Society.
- Phillips, Spencer R. 1993. The northern forest: Strategies for sustainability, Volumes 1 and 2. Washington DC: The Wilderness Society.
- Phillips, Spencer R. 1994. Toward a sustaining forest: Development opportunities for the Maine woods. Washington, DC: The Wilderness Society.
- Phillips, Spencer R. 2000. Windfalls for wilderness: Land protection and land value in the Green Mountains. In David N. Cole and Stephen F. McCool. Proceedings: Wilderness Science in a Time of Change. Ogden, UT: USDA, Forest Service, Rocky Mountain Research Station. RMRS-P-15.
- Piscataquis County Commission. 1974. Piscataquis County forest resource availability study and economic development program: Application for technical assistance from the Economic Development Administration. Dover-Foxcroft, ME.
- Pohlmann, Lisa and Christopher St. John. 1999. Life after lay-off in central Maine. Augusta, ME: Maine Center for Economic Policy.
- Pohlmann, Lisa, Christopher St. John, and Wade Kavanaugh. 1999. Getting by in 1999. Augusta, ME: Maine Center for Economic Policy.
- Power, Thomas M. (ed) 1995. Economic well-being and environmental protection in the Pacific Northwest. Missoula, MT: University of Montana.
- Power, Thomas M. 1996. Environmental protection and economic well-being: The economic pursuit of quality. Armonk, NY: M. E. Sharpe Publishers.
- Power, Thomas M. 1996. Lost landscapes and failed economies. Washington DC: Island Press.
- Power, Thomas M. and Richard Barrett. 2001. Post-cowboy economics: Pay and prosperity in the new American West. Washington DC: Island Press.
- Preston, Catherine and Spencer Phillips. 1995. Economic profiles of the northern forest. Washington DC: The Wilderness Society.
- Rasker, Ray. 1994. A new look at old vistas: The economic role of environmental quality in western public lands. *University of Colorado Law Review* 65(2):369-97.

- 
- Reiling, S.D. and J.A. Michael. 1995. An analysis of Maine tourism indicators. Augusta, ME: Maine Department of Economic and Community Development.
- RESTORE: The North Woods. 1994. Proposed Maine Woods National Park & Preserve: A vision of what could be. Concord, MA.
- RESTORE: The North Woods. 1999. America's next great national park: Preserving our Maine woods legacy. Augusta, ME and Concord, MA.
- Rivers, Trails and Conservation Assistance Program. 1992. Economic impacts of protecting rivers, trails, and greenway corridors. Washington, DC: National Park Service.
- Roper, R.K., K.J. Boyle, and S.D. Reiling. 1992. The economic impact of fishing, hunting, and wildlife observation on Maine's economy. *Maine Business Indicators* 37(3): 1-3.
- Rothman, Hal K. 2000. A history of U.S. national parks and economic development. In Gary E. Machlis and Donald R. Field (eds), *National parks and rural development: Practice and policy in the United States*. Washington DC: Island Press.
- Rudzitis, Gundars. 1996. *Wilderness and the changing American West*. New York, NY: John Wiley and Sons.
- St. John, Christopher. 2000. State of working Maine 2000. Augusta, ME: Maine Center for Economic Policy.
- St. Pierre, James A. 1998. For a strong economy we need big wilderness. *The Dissident* (March 1998).
- Schuster, E. V. and E. L. Medima. 1989. Accuracy of economic impact analysis. *Journal of Forestry* 87(8):27-32.
- Seville, Don, Andrew Jones and Donella Meadows. 2000. The forest systems modeling project: Exploring the future of the northern forest. Interim Report—July 2000. Hartland Four Corners, VT: The Sustainability Project and the Northern Forest Center.
- Sigman, Benjamin C. 1999. The role of park attributes in national park visitation rates: An application to the proposed Maine Woods National Park and Preserve. Unpublished senior thesis. Waterville, ME: Colby College, Economics Department.
- Smith, David C. 1989. Large land holdings and the north woods: Stasis or changing times. In Clark S. Binkley and Perry R. Hagenstein (eds), *Conserving the North woods*. New Haven, CT: Yale School of Forestry and Environmental Studies, Bulletin 96.
- Southwich Associates. 2000. Historical economic performance of Oregon and western counties associated with roadless and wilderness areas. Fernandina Beach, FL: Prepared for the Oregon Natural Resources Council and the World Wildlife Fund.
- Sustainable Maine primer: Integrating economy, environment and community. 2000. Augusta, ME: Maine Center for Economic Policy.
- US Department of Agriculture. 1999. Rural development perspectives 14(2) (August) Washington, DC: Economic Research Service.
- US Department of Commerce. 2000. Regional economic information system, 1969-98. CD-ROM. Washington, DC: Bureau of Economic Analysis.
- US Bureau of the Census. 1992. Census of governments 4(5), Compendium of government finances, GC92(4)-5.
- US Congress. 1916. National Park Service Organic Act of August 25, 1916, P.L. 64-235, 16 USC §1 et seq. as amended.
- Ullman, E. 1954. Amenities as a factor in regional growth. *Geographical Review* 44(1):119-32.
- Vail, David and Michael Hillard. 1995. Maine invests in jobs, but what is it getting? *Maine Sunday Telegram* (April 2, 1995).
- Vail, David and Michael Hillard. 1997. Taking the high road: Human resources and sustainable rural development in Maine. Augusta, ME: Maine Center for Economic Policy.
- Vail, David, Jym St. Pierre and Tim Glidden. 2001. Sustaining the many values of Maine's forests. In SustainMaine Action Agenda 2001. Augusta, ME: Maine Sustainable Development Working Group.
- The Wilderness Society and Vermont Center for Geographic Information. [www.eco2eco.net](http://www.eco2eco.net).
- Wilson, Mike. 2000. Northern forest wealth index: Exploring a deeper meaning of wealth. Concord, NH: Northern Forest Center.
- Young, Susan. 2001. Mainers take to the woods. *Bangor Daily News* (April 20, 2001).
- Zaslowsky, Diane. 1986. *These American lands*. New York, NY: Holt and Company.



**THE ECONOMIC IMPACT OF THE PROPOSED  
MAINE WOODS NATIONAL PARK & PRESERVE**

**Thomas Michael Power, Ph.D.**

September 2001