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**Forestland Ownership in Maine:  
Recent Trends and Issues**

A Report to the Joint Standing Committee on  
Agriculture, Conservation and Forestry  
Second Regular Session of the 119<sup>th</sup> Maine Legislature

By  
Karen S. Nadeau

March 2000



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Prepared by  
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under the auspices of:

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## **ABOUT THE AUTHOR**

Karen S. Nadeau is a candidate for the Master of Forestry degree in Forest Management at the University of Maine in December 2000. She served as a legislative intern for the Joint Standing Committee on Agriculture, Conservation and Forestry. The internship program was designed to increase professional contact between the Maine State Legislature and the University on agricultural and forestry issues.



## Table of Contents

	<u>page</u>
Overview	1
Background	4
Current Forestland Ownership	11
Major Land Transactions – A Snapshot	13
Why Paper Companies Are Selling Forestland	14
The New Players – Institutional Investors	16
Public And Private Conservation Lands	19
Conclusion	21
References	22
Glossary	24
Appendix A - Maine Land Sales – 10,000 Acres and Larger – 1990 through 1999	25

### ERRATA

Pg. 20 -- Table 9 is based on 1997 data.

Pg. 27 -- Appendix A: Total land transferred is equal to 9,081,690 acres.





## OVERVIEW

Over the last decade, Maine has seen an unprecedented amount of land transfer activity among owners of large blocks of forestland. The purpose of this report is to identify the most significant changes in commercial woodland ownership in Maine since 1990 and to explore what factors may be causing such changes.

Three major patterns have affected land ownership in Maine. First, industrial landowners have been the primary sellers of large parcels of forestland since the mid-1980s. Correspondingly, institutional investors have emerged as the principal buyers of forestland and, as a result, have become significant landowners in the state. Finally, perhaps because of public concern regarding this land transfer activity and changes to land uses that may result, conservation measures are becoming more popular – conservation easements and land ownership by not-for-profit organizations, for example.

As seen in Figure 1, the changes in commercial forestland ownership in Maine since the early 1970s lie mainly with the shift from industrial holdings to ownership by investor groups. (Source: Maine Forest Service) In 1972, industry comprised 47 percent of timberland ownership in the state. Today, according to Maine Forest Service data, that percentage has decreased by as much as 17 percent. Investor groups, like McDonald Investments, have purchased many of these lands. In 1972, these investors had no holdings in Maine. However, as of 1999, investor groups have acquired approximately 15 percent of Maine's timberland – roughly 2,572,000 acres.

Other categories of commercial forestland owners in Maine include large nonindustrial, small nonindustrial, and public entities. Large nonindustrial owners are those that own approximately 100,000 acres or greater, but do not own any manufacturing facilities in the state.

Likewise, small nonindustrial owners do not possess any wood or pulp processing facilities, but each landowner in this group owns less than 100,000 acres. Large nonindustrial landholdings have remained relatively stable with 16 percent of Maine timberland ownership in 1972 and an estimated 14 percent in 1999. On the other hand, small nonindustrial ownership has increased from 33 percent in 1972 to 37 percent in 1999. Public ownership includes federal, state, county and municipal holdings of timberland. Public holdings have lingered at approximately four percent since the early 1970s.

Figure 1. Comparison of Timberland Ownership in Maine

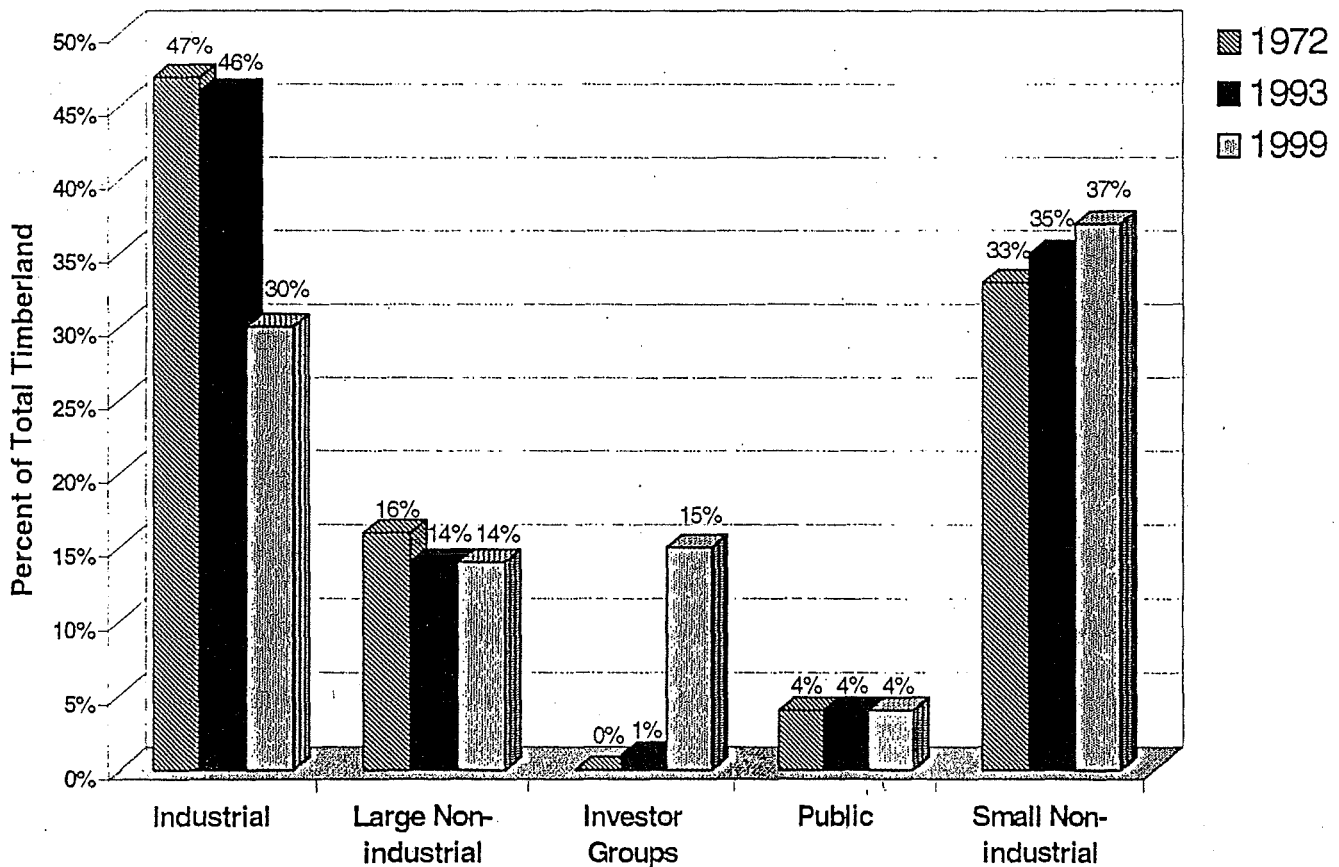


Table 1. Timberland Ownership in Maine, 1972 - 1999

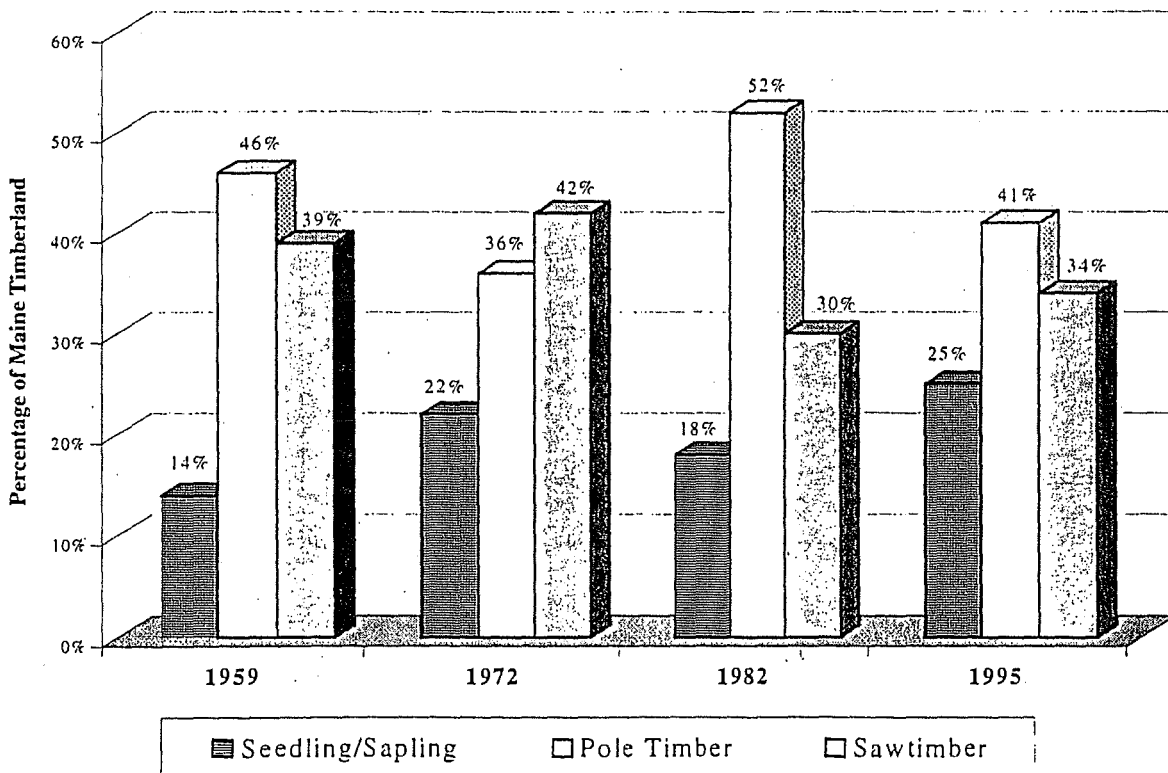
Owner	1972		1993		1999 (estimated)	
	Thousands of Acres					
Irving Pulp & Paper, Ltd.	400		600		1,550	
Champion International Corp.	751		730		913	
Mead Oxford Corp.	0		0		660	
International Paper	1,132		976		484	
Huber Resources Corp.	400		400		437	
Great Northern Paper, Inc.	2,250		2,100		400	
Clayton Lake Woodlands, L.L.C.	0		0		245	
Fraser Papers Inc.	182		240		240	
Kruger	0		109		109	
James River Corp.	762		350		0	
Georgia-Pacific Corp.	435		464		0	
Boise Cascade Corp.	0		670		0	
SAPPI (formerly Scott Paper - S.D. Warren)	882		930		0	
Timberlands, Inc.	91		91		0	
Other industrial (1972 FIA data)	732		91		0	
<b>Industrial</b>	<b>8,017</b>	<b>47%</b>	<b>7,751</b>	<b>46%</b>	<b>5,038</b>	<b>30%</b>
Pingree Associates, Inc.	1,700		950		950	
Prentiss & Carlisle	700		1,000		850	
The Nature Conservancy	0		0		185	
Passamaquoddy, Penobscot Nations	20		160		160	
Dunn Heirs	150		106		116	
Baskahegan Company	100		100		109	
Stetson Timberlands, Inc.	0		0		105	
<b>Large Nonindustrial</b>	<b>2,670</b>	<b>16%</b>	<b>2,316</b>	<b>14%</b>	<b>2,475</b>	<b>14%</b>
Plum Creek Timberlands, L.L.C.	0		0		905	
McDonald Investments Inc.	0		0		656	
Wagner Timber Partners, L.L.C.	0		0		470	
Hancock Timber Resource Group	0		250		450	
New River, Franklin & Buckfield, L.L.C.	0		0		91	
<b>Investor Groups</b>	<b>0</b>	<b>0%</b>	<b>250</b>	<b>1%</b>	<b>2,572</b>	<b>15%</b>
Bureau of Parks & Lands - Public Reserve Lands	462		462		482	
Other Public	149		170		170	
<b>Public</b>	<b>611</b>	<b>4%</b>	<b>632</b>	<b>4%</b>	<b>652</b>	<b>4%</b>
Small, nonindustrial ownerships	5,597		5,989		6,201	
<b>Small Nonindustrial</b>	<b>5,597</b>	<b>33%</b>	<b>5,989</b>	<b>35%</b>	<b>6,201</b>	<b>37%</b>
<b>Totals</b>	<b>16,895</b>	<b>100%</b>	<b>16,938</b>	<b>100%</b>	<b>16,938</b>	<b>100%</b>

Source: Maine Forest Service

## BACKGROUND

Maine is the most heavily forested state in the nation with approximately 90 percent of Maine's land area covered by forests (Griffith and Alerich 1996). Of Maine's 19,753,000 acres of total land area, 17,711,000 acres were covered by forest in 1997 (Table 2). However, there has been concern about the quality of Maine's forests. Maine's forests are younger (i.e. trees are smaller) than they were roughly 40 years ago (Figure 2). Young stands occupied 25 percent (4.2 million acres) of Maine's forest in 1995, which is an increase of seven percent (1.2 million acres) since the early 1980s. Spruce budworm outbreaks, periods of concentrated harvest activity, and farmland abandonment have all contributed to the unbalanced age-class structure of Maine's forestland (Maine Forest Service 1998).

Figure 2. Changes in Maine's Forest - Percentage of Timberland by Stand-size Class



Source: Maine Forest Service

**TABLE 2. Land Area in the State of Maine, 1997**  
(Thousands of acres)

Total Land Area:	19,753
Total Forestland:	17,711
Timberland:	16,952
Reserved Forestland:	346
Other Forestland:	412
Other Land:	2,043

Source: USDA-Forest Service website.

**Table 2 Glossary:**

**Forestland:** Land at least 10 percent stocked by forest trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. Forestland includes transition zones, such as areas between heavily forested and non-forested lands that are at least 10 percent stocked with forest trees and forest areas adjacent to urban and built-up lands.

**Timberland:** Forestland that is producing or is capable of producing crops of industrial wood, and that is not withdrawn from timber utilization by statute or administration regulation. Areas qualifying as timberland are capable of producing more than 20 cubic feet per acre per year of industrial wood in natural stands. Industrial wood includes all commercial roundwood products, from pulpwood to sawlogs, but does not include firewood.

**Other Forestland:** Forestland other than timberland and productive reserved forestland. It includes available and reserved forestland, which is incapable of producing annually 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions, such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness. Urban forestland is also included.

**Other Land:** Non-forestland less the area in streams, sloughs, estuaries, and canals between 120 and 200 feet wide and lakes, reservoirs, and ponds between one and 4.5 acres in area.

**Reserved Forestland:** Forestland withdrawn from timber utilization by statute, administrative regulation, or designation.

Of this forestland, almost 97 percent (16,952,000 acres) is categorized as timberland (see Table 2). Although the amount of timberland in Maine has increased from the early 1950s (Tables 3 and 4), timberland acreage has decreased since its peak in the late 1980s. Reductions in timberland can be attributed to land classification changes: of forestland to urban sprawl; of private land to lands where timber harvesting is not allowed; and of public forestland to wilderness designations, where timber harvesting is also prohibited (Field 1999). Reserved forestland acres (see Table 2 glossary) encompass the last two land classification changes. The number of acres in this category has increased by 68,000 acres, from 278,000 acres in 1992 to 346,000 in 1997 (USFS RPA website).

**Table 3. Timberland Ownership Trends and Patterns in Maine, 1952 and 1997**  
(Thousands of acres)

Year	All Owners	Total Public	Total Private	Forest Industry	Nonindustrial Private
1997	16,952	630	16,332	7,298	9,024
1952	16,609	182	16,427	6,617	9,810
% Change (52-97)	2.1%	246.2%	-0.6%	10.3%	-8.0%
Percentage 1997	100.0%	3.7%	96.3%	43.1%	53.2%

Source: U.S. Forest Service, RPA Website and Irland, 1999b.

**TABLE 4. Timberland Area in the State of Maine by Ownership  
(Thousands of acres)**

	Year				
	<u>1997</u>	<u>1987</u>	<u>1977</u>	<u>1963</u>	<u>1953</u>
<b>All Ownerships</b>	16,952	17,174	16,864	16,779	16,609
<b>Total Public</b>	629	495	541	205	182
<b>Total Federal</b>	51	76	73	66	90
National Forest	32	46	38	39	39
BLM	0	0	0	0	0
Other	20	30	36	27	51
<b>State     County &amp;     Municipal</b>	469	331	354	64	41
State	469	331	354	64	41
County & Municipal	109	88	114	75	51
<b>Total Private<sup>a</sup></b>	16,323	16,679	16,323	16,574	16,427
Forest Industry	7,298	8,286	8,083	6,521	6,617
Nonindustrial	9,024	8,393	8,240	10,053	9,810
Private Total	9,024	8,393	8,240	10,053	9,810

<sup>a</sup>Native American Lands are included exclusively in the Nonindustrial Private owner group for 1997 only. For 1987 and earlier years, these lands may be included in the Other Public owner group.

Note: Data may not add to totals because of rounding.

Source: Powell et al., 1993 and USDA-Forest Service website.

Table 4 highlights the breakdown of Maine's timberland owners. Maine has one of the lowest amounts of public land ownership of any forested state. In 1997, public lands in Maine (forested and non-forested) totaled about 1,051,318 acres with 861,645 acres in state ownership and 189,673 acres in federal ownership (Table 5). This represents approximately 5 percent of Maine's total land area.



**Table 5. Public Land Ownership in Maine, 1997**

	Acres
<b><u>State Ownership</u></b>	
Dept. of Conservation	567,768
Dept. of Inland Fisheries & Wildlife	87,969
Baxter State Park Authority	205,908
<b>Total State Ownership</b>	<b>861,645</b>
<b><u>Federal Ownership</u></b>	
National Park Service	82,144
U.S. Fish & Wildlife Service	44,864
U.S. Forest Service	62,665
<b>Total Federal Ownership</b>	<b>189,673</b>
<b>Total Public Land Ownership in Maine</b>	<b>1,051,318</b>

Source: State Planning Office.

Note: Some of these lands are currently managed/used for timber production.

Ninety-five percent of Maine's forestland continues to be privately owned – more than any other state in the United States (Kelly 1993). In 1993, it was estimated that 250,000 nonindustrial landowners held more than half of the timberland in the state of Maine (Birch 1996). Current Maine Forest Service data suggest that both large and small nonindustrial interests comprise approximately 51 percent of timberland owners in Maine (Figure 1 and Table 1).

Maine has more timberland in industrial ownership than any other state (Field 1999). However, given the large number of forestland transactions in recent years, industrial ownership has lessened (Irland 1999a).

Interestingly, Maine also has more acres under foreign ownership than any other state in the nation. According to the USDA Economic Research Service, by the end of 1997, foreign landownership accounted for 17 percent of Maine's privately owned agricultural land, which

includes forestland and farmland (Barnard 1998 -- Table 6). Industry analysts have noted that Canadian interests constitute most, if not all, of the foreign landownership in the state.

In addition, while preparing this report, Europe's largest forest products company -- UPM-Kymmene of Helsinki, Finland -- announced plans to acquire Champion International. The sale would include approximately 913,000 acres (primarily in Washington and Hancock Counties) and three mills -- two stud mills in Costigan and Passadumkeag and a paper mill in Bucksport. The deal, pending shareholder and regulatory approvals, would be the first major acquisition of a North American company in the forest products industry by a European company (Hewitt 2000). The resulting paper company would be the third largest in the world, behind only International Paper and Georgia-Pacific Corporation, and would own 15.8 million acres in 17 countries on five continents (Austin 2000b).

However, the future of the \$6.6 billion dollar proposal is uncertain. According to one Wall Street analyst, Champion stockholders are not completely satisfied with the tentative agreement where only shares in UPM-Kymmene, not cash, are being offered to stockholders. Mark Wilde, a Deutsche Banc Alex Brown analyst, believes that other bidders could emerge, like International Paper and Mead Oxford Corporation, in conjunction with others (Austin 2000b).

**Table 6. Use of U.S. Agricultural Landholdings of Foreign Owners  
by State & County in Acres  
December 31, 1997**

County	Crop Land	Pasture	Forest	Other Agriculture	Other Non- Agriculture	Total
Androscoggin	0	63	0	0	63	
Aroostook	464	61	1,750,988	22,591	3,776	1,777,880
Cumberland	0	0	1,688	0	0	1,688
Franklin	0	0	96,739	46	1	96,786
Hancock	45	15	8,881	204	48	9,193
Kennebec	0	0	1,389	0	0	1,389
Lincoln	0	0	973	0	30	1,003
Oxford	0	0	3,076	0	0	3,076
Penobscot	75	60	74,869	0	0	75,004
Piscataquis	0	20	242,182	6	9	242,217
Somerset	85	0	749,342	0	0	749,427
Waldo	0	0	2,131	78	0	2,209
Washington	15,871	50	55,833	2,815	1,586	76,155
York	84	0	1,016	0	8	1,108
<b>Total</b>	<b>16,624</b>	<b>206</b>	<b>2,989,170</b>	<b>25,740</b>	<b>5,458</b>	<b>3,037,198</b>

Note: Sappi, Ltd. purchase of S.D. Warren Maine forestland (930,000 acres) is included in this table. Most of that land was sold in late 1998. Acquisition of one million acres in Maine by J.D. Irving, Ltd. (of New Brunswick, Canada) in 1999 is not included.

Source: USDA Economic Research Service, Barnard 1998.

## CURRENT FORESTLAND OWNERSHIP

I wanted to begin my research on forestland ownership patterns in Maine with an up-to-date list of the largest landowners in the state and their corresponding acreage. Data from different sources vary quite dramatically (Table 7). This is not surprising given that no one entity systematically tracks data on forestland transfers -- even though landownership information is in the public domain. Some agencies rely on newspaper clippings to update their data. Landownership is information that policymakers and the scientific community need to effectively do their jobs. As one researcher I spoke with put it, "From a policy and scientific perspective, the state really needs these kinds of data, but nobody is collating and maintaining this information. We have a lot of technical ability to track landownership in the state, but no routine mechanism in place."

**Table 7. Large Timberland Owners in Maine  
Comparison of Data (in Acres)**

<b>Landowner</b>	<b>The Irland Group Early 1999</b>	<b>MFS 8/99</b>	<b>MFPC 10/99</b>
Baskahegan Company	109,000	108,000	90,000
Champion International Corp.	800,000	913,000	930,000
Clayton Lake Woodlands, L.L.C.		245,000	350,000
Dunn Timberlands, Inc.	106,000	116,000	100,000
Fraser Papers Inc.	420,000	230,000	250,000
Huber Resources Corporation	300,000	437,851	300,000
Inexcon Maine, Inc. (formerly Great Northern Paper, Inc. lands)	500,000	400,000	380,000
International Paper	615,000	546,328	484,000
Irving Pulp & Paper, Limited	1,600,000	1,660,000	1,600,000
John Hancock Timber Resource Corp.	450,000	257,989	360,000
McDonald Investments Inc.	656,000	656,000	740,000
Mead Oxford Corporation	670,000	660,000	550,000
The Nature Conservancy		185,000	185,000
Pingree Associates, Inc.	900,000	950,000	950,000
Plum Creek Timberlands, L.L.C.	905,000	897,700	905,000
Prentiss & Carlisle Mgt. Co., Inc.	850,000	896,286	860,000
Wagner Timber Partners, L.L.C. (formerly Georgia-Pacific Corp. lands)	464,000	469,836	
<b>Totals</b>	<b>9,345,000</b>	<b>9,628,990</b>	<b>9,034,000</b>

Sources: The Irland Group (Irland, 1999d); Maine Forest Service (MFS);  
and Maine Forest Products Council (MFPC)

## MAJOR LAND TRANSACTIONS – A SNAPSHOT

Over half of Maine's forestland has changed hands during the last decade. According to information made available by James W. Sewall Company in Old Town, 34 land transfers of 10,000 acres and larger, totaling approximately 9.1 million acres, occurred from 1990 through 1999 (Appendix A). This sales activity is not just a Maine phenomenon. In a period of two years (1997 through 1998), 25 percent of all industrial forestland changed ownership in the United States (Brown 1999).

Maine's landownership patterns have changed as a result of the major land transfers that occurred in the 1980s and 1990s. First, timberland is far less concentrated in the hands of paper companies than it has been since the 1930s (Irland 1999a). Secondly, institutional investors have become major players in timberland ownership in Maine. According to the Maine Forest Service, the investor group now holds approximately 15 percent of Maine's timberland, while industrial ownership has decreased from 46 percent in 1993 to an estimated 30 percent in 1999. And finally, conservation strategies are taking on new forms through conservation easements and timberland ownership by nonprofit organizations. Also, a \$50 million bond to purchase public land for conservation, water access, outdoor recreation, and farmland preservation was passed in November of 1999.

Of the 34 transactions of 10,000 acres and larger, which took place from January of 1990 to mid-December of 1999, over three-quarters involved large industrial landowners selling some or all of their landholdings. Many of those transfers were characterized as "the selling of nonstrategic assets," or "attempting to focus on core business." Many of the buyers of industrial forestland were private investors, such as McDonald Investments, and institutional investors. Hancock Resource Timber Group, a timber management organization, has purchased 375,411

acres in Maine over the last 10 years on behalf of institutional investors. However, there are cases where industrial landowners, such as Irving Pulp and Paper and Champion International, purchased forestlands they considered strategic to their mills.

## **WHY PAPER COMPANIES ARE SELLING FORESTLAND**

Historically, paper companies held forestland for many reasons. Owning commercial forestland secured wood supply for mills and had tax advantages. According to forest economist Lloyd Irland, "Paper companies traditionally owned timberland because their bankers required it. The investment bankers simply could not believe that paper mills could supply themselves with fiber economically without controlling a significant portion of their needs through fee timberlands." As a result, paper companies became "vertically integrated" -- controlling everything from wood fiber to water rights to hydropower to insure the flow of raw materials to their processing facilities (Irland 1999a).

However, some believe that the 1986 Tax Reform Act cooled the industry's interest in commercial woodland ownership (Irland 1999a). The Act essentially made the capital gains tax rate on appreciated values of timber for forest products companies the same as the tax rate of regular income from manufacturing and other businesses. The 1986 tax reform took away the tax advantage timberland ownership once had (Yin et al. 1998).

A year later, in 1987, the "Asian flu" hit the pulp and paper industry. The ailing global paper market forced many companies to find ways to raise cash and enhance earnings (Brown 1999). Consequently, commercial forestland became more of a liability than an asset to many paper companies. Timberland holdings -- with its many associated costs: taxes, liability

insurance, public access and recreation management, to name a few -- were deemed nonstrategic (Brown 1999).

Industry analysts affirm that the forest products and paper industry is under tremendous pressure from the investment community to improve its financial performance (Yin et al. 1998). In response, many corporations have been reorganizing their assets. In many cases, this means divesting their landholdings to concentrate on their core business – the production of paper or other forest products.

Selling forestland to a competitor would not be an attractive alternative because the selling company could lose the ability to repurchase the timber on the open market (Binkley et al. 1996). Generally, the firms most likely to sell forestland are those owning mills that are the only processing plants for stumpage in a given area. Being the only feasible consumer for a particular region insures access to the supply of wood. In addition, many of the large land sales have built-in long-term supply contracts to guarantee that the mills' need for raw material is met (Brown 1999). Also, companies that hold tracts outside the economic range of their own mills are likely to be interested in sale as well (Rinehart 1985). Increasingly, mills are procuring wood from non-company lands. Improvements in logging equipment and transportation infrastructure have expanded the range of available timber supply. And finally, for paper companies with aging mills, particularly in the State of Maine, selling commercial woodland can be a way to raise much need money for capital investments in their facilities.



## THE NEW PLAYERS – INSTITUTIONAL INVESTORS

The decline of forestland holdings among industrial firms closely correlates with the increase in institutional timberland investments (Yin et al. 1998). Institutional timberland investors are organizations that hold assets as fiduciaries for the benefit of others. This investor group includes such entities as bank trust departments, insurance companies, mutual funds, pension funds, and university endowment funds. Potential investors in timberland can be divided into two broad groups: taxable investors and tax exempt investors.

Taxable investors include corporations and private individuals. In Maine, McDonald Investments is an investment vehicle for a successful Alabama businessman and his family. Company statements have expressed an interest in maintaining a long-term investment portfolio (Ireland 1999a). However, according to a recent story in the Maine Times, town and state records show that at least two dozen parcels of former United Timber properties have been sold since McDonald Investments acquired the property about a year ago. According to Wagner Forest Management, 314 tracts -- totaling 90,583 acres -- are for sale in Western Maine (Austin 2000a).

Pension funds are considered the most important group of tax-exempt investors. For example, Hancock Timber Resource Group's major clients include the California Public Employees Retirement System (Calpers) and The Teachers State Retirement System of Ohio. However, both have since pulled approximately \$789 million of a combined \$1.55 billion the two had invested with Hancock (Starkman 2000). To ameliorate the situation, Hancock plans to give Calpers direct ownership of its timberland assets and much more control over investment decisions. Historically, Hancock formally owned the land and exercised considerable decision-making authority, which apparently bothered some Calper officials (Starkman 2000). Table 8 lists some of the top American companies in the timber investment-management business.

**Table 8. Timber Territory**  
**Top players in timber investment-management business, by assets under management:**

Name	Affiliation	Location	Assets Under Mgmt. (millions)
Hancock Timber Resources	John Hancock Financial Services	Boston, MA	\$2,900
UBS Brinson	UBS	West Lebanon, NH	\$1,300
Campbell Group	United Asset Management	Portland, OR	\$1,100
Forest Investment Associates	-----	Atlanta, GA	\$1,100
Wachovia Timberland Inv. Mgt.	Wachovia	Winston-Salem, NC	\$920
Prudential Timber Investments	Prudential Insurance of America	Boston, MA	\$500
Forest Systems	-----	North Easton, MA	\$410

Source: Wall Street Journal Research, Starkman 2000.

According to Maine Forest Service data, institutional investors now hold over 2.5 million acres of Maine's commercial forestland (Figure 1 and Table 1). Timber-investing dates to the mid-1980s, when paper companies were purchased at bargain prices primarily to acquire their undervalued timber holdings (Starkman 2000). Institutions have the large amounts of capital needed and investment objectives consistent with large-scale ownership of land (Binkley et al., 1996).

Changes in pension regulations and the widespread corporate restructuring of the 1980s led to the development of institutional investment. The 1974 federal Employee Retirement Income Security Act (ERISA) for private pension plans, as well as state legislation for many public pension plans, endowments, and foundations, encouraged institutional investors to diversify their portfolios. Historically, these investors relied on fixed-income securities like government and corporate bonds, but the Act led to greater investment in stocks, commercial real estate, and finally, timberland (Binkley et al. 1996).

This happened at a time when many forest products companies were re-evaluating the strategic role of their forestland holdings (Binkley et al. 1996). According to many industry experts, some forest products companies began to view the large values accumulated in their forests as a potential source of capital for investment of processing facilities (Rinehart 1985).

An investment in timberland is really a very simple real estate investment consisting of three basic elements: bare land, merchantable timber, and premerchantable trees. The overall return to the investor depends on the performance over time of the value of each of these components (Zinkhan et al. 1992). In the United States, one of the reasons why timberland assets have performed so well in the 1990s includes harvesting restrictions imposed on federal lands, principally in the Northwest, which drove up stumpage prices (Caulfield 1998). Likewise, one of the potential advantages of this new ownership is that institutional investors will place less timber on the market during economic downturns.

According to a 1987 study published in the *Southern Journal of Applied Forestry*, the majority of the timberland owners surveyed thought that 10 to 15 years was an appropriate time horizon for holding these investments. This time span seems brief in terms of typical timber rotations. However, for investment managers who are in the habit of evaluating a portfolio every quarter, 10 to 15 years is a long time (Harris et al. 1989).

According to the John Hancock Timber Index, timberland returns have been highest and most volatile in the Northwest, and lowest and least volatile in the Northeast (Binkley et al. 1996). Institutional ownership may bring substantial changes to the forestry sector by reducing price volatility and risk associated with timberland management (Zinkhan et al. 1992). Timber assets owned by pension funds, insurance firms, endowments, and other investors have increased to almost \$6 billion, and further increases are expected (Yin et al. 1998).

## **PUBLIC AND PRIVATE CONSERVATION LANDS**

Maine has less public land in proportion to its area than any other forested state (Irland 1996). Less than 5 percent of Maine's land is under public ownership (for a comparison of some New England states, see Table 9). State and federal governments own roughly one million acres of conservation and recreation land in Maine in fee or conservation easements (Table 5). It is important to note that some public lands are currently being managed and/or used for timber.

The Land for Maine's Future Program (LMFP) has been the most prominent land acquisition program in the state over the last decade. Initially, a \$35 million dollar bond issue in 1987 financed the program. In addition, a \$50 million dollar land bond, with a matching \$25 million from other sources, passed in November of 1999 which will re-fund the LMF program. One of the major goals of the LMF program is to increase public and private conservation ownership in Maine by 10 percent (100,000 acres) by the year 2000 and double conservation lands by the year 2020 to 10 percent (State Planning Office 1997).

Likewise, private conservation organizations are involved in land acquisition. The Nature Conservancy, a non-profit organization, purchased an equivalent of 185,000 acres of forest (100 percent interest in 138,664 acres and 58% interest in 79,512 acres) in the Upper St. John region of the northern Maine Woods. Another non-profit, The New England Forestry Foundation which is headquartered in Massachusetts, has been working with the Pingree Heirs on a proposed non-development easement on 754,673 acres of timberland. The project is contingent on whether the Foundation can raise the \$28 million needed to fund the purchase of development rights.

In 1995, Maine had 72 land trusts that conserved 90,332 acres in 720 parcels. Forty percent are in fee ownership and the remaining 60 percent are held in easements (Krohn et al

1998). In 1997, non-profit land conservation groups owned approximately 45,000 acres of property in fee and 54,000 acres of land in conservation easements (State Planning Office 1997). In an article regarding timberland transfers, the Maine Times wrote, "The current alignment of augmented public and private conservation funding with massive land sales is unprecedented" (Austin 1999).

**Table 9. Comparisons of Public Forestland Ownership  
Among New England States**

	State	County & Municipal	Federal	Total Public	% of Total Forestland
	(Thousands of Acres)				
Maine	738	116	125	979	5
New Hampshire	237	126	730	1,093	19
Massachusetts	341	232	69	642	13
New York	3,640	378	108	4,128	14

Source: USDA-Forest Service RPA website.

## CONCLUSION

In light of the changes surrounding forestland ownership and management, future research is needed to examine ownership trends and strategies by firms and regions (Yin et al. 1998). A Maine Forest Service study, "Timber Supply Outlook for Maine: 1995 – 2045," recommended that future work include a more complete public database on forest acres that are subject to harvesting restrictions, or are being held without any harvesting or management activities (Maine Forest Service 1998).

As sales and acquisitions of the recent past have shown, forestland ownership is not static. The changes in landownership have involved the breakup of large landholdings so familiar to our state that they were considered as long-standing as Mount Katahdin itself (Ireland 1999a). The policymakers, scientists, researchers and analysts of our state may benefit from a greater understanding of the changing landownership patterns in Maine and their implications on natural resources of the state for the future.

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## Glossary

**Forestland:** Land at least 10% stocked by forest trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. Forestland includes transition zones, such as areas between heavily forested and nonforested lands that are at least 10% stocked with forest trees and forest areas adjacent to urban and built-up lands (Powell et al., 1993).

**Industrial wood:** All commercial roundwood products except fuelwood.

**Institutional Investor:** Institutional timberland investors are organizations that hold assets as fiduciaries for the benefit of others (Yin et al., 1998). Includes such entities as bank trust departments, insurance companies, mutual funds, pension funds, and university endowment funds (Zinkhan et al., 1992).

**Limited liability company:** A limited liability company (sometimes known as an "LLC") is a combination of the characteristics of a corporation and a partnership. Although it is treated as a partnership for purposes of the Internal Revenue Code, its owners (members) have limited liability. This means that the most that they can generally lose is their investment in the company (Jacksack 1998).

**Other Forestland:** Forestland other than timberland and productive reserved forestland. It includes available and reserved forestland, which is incapable of producing annually 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions, such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness. Urban forestland is also included.

**Other Land:** Non-forestland less the area in streams, sloughs, estuaries, and canals between 120 and 200 feet wide and lakes, reservoirs, and ponds between one and 4.5 acres in area.

**Reserved Forestland:** Forestland withdrawn from timber utilization by statute, administrative regulation, or designation.

**Roundwood products:** Logs, bolts, and other round timber generated from harvesting trees for industrial or consumer use.

**Timberland:** Forestland that is producing or is capable of producing crops of industrial wood, and that is not withdrawn from timber utilization by statute or administration regulation. Areas qualifying as timberland are capable of producing more than 20 cubic feet per acre per year of industrial wood in natural stands (Powell et al., 1993).

Appendix A. Maine Land Sales -- 10,000 Acres and Larger -- 1990 through 1999

Date	Grantor	Grantee	Location	Interest	Acres	Price	S/Acre	Remarks	Nature of Transfer
10/11/90	Diamond Occidental Forest Inc.	State of Maine	T1-R11 WELS (Rainbow Twp.); T2 R11 WELS	1.0000000	29,692	\$8,440,770	\$284	Surrounds Nahmakanta Lake but does not include actual frontage	hbu assets (hbu = higher & better use); grantor = industry (a.k.a. James River); grantee = State of Maine
07/18/91	Chadbourne Lumber Co.	Resource Investments Inc.	Western Maine	1.0000000	10,581	\$5,400,000	\$510		grantor = liquidation of non-strategic assets; grantee = pension fund; 1st Northeast investment for Resource Investments, Inc.
03/01/92	Georgia-Pacific Corp. (GNP)	Bowater Inc.	Central & Northern Maine	1.0000000	2,100,000	N/A	N/A	Acres shown are equivalent interest - includes mills	grantor = GP trying to focus on core business; grantee = Bowater; "asset purchase"
06/02/92	Webber	Prentiss & Carlisle et al.	T3 R2 & T3 R3	1.0000000	19,660	\$3,375,000	\$172		grantor = NIPF; grantee = manages for NIPF's
12/18/92	Scott Paper Co.	Resource Investments Inc.	Parsonfield & Sebago	1.0000000	10,832	\$4,500,000	\$415		legal entity; S.D. Warren = land-holding subsidiary of Scott paper; selling of non-strategic assets
05/24/93	Eibthal Realty	Cherryfield Foods, Inc.	T24 MD BPP	1.0000000	13,919	\$1,332,000	\$96	Blueberry land, bogs included	NIPF sold to blueberry firm; not really timberland transaction
07/13/93	Macwahoc	Irving (Consolidated Rambler Mines)	Limestone, Connor, Caswell	1.0000000	11,652	\$2,097,360	\$180		grantor = NIPF; grantee = strategic; softwood to feed mill in St. Leonard, N.B.
07/28/93	Great Northern Nekoosa (Georgia Pacific Corp.)	Moosehead Wildlands, Inc. (c/o John Willard)	Moosehead Area - Tomhegan Twp.	1.0000000	11,094	\$5,100,000	\$460	145 leases on Moosehead and Brassua Lakes	grantor = GNN, non-strategic parcel; hbu potential; grantee = Wildlands, Inc. (aka The Birches - recreation and timber)
09/13/93	Scott Paper Co.	Campbell, Robie, Van Vleck	Cumberland, Oxford & York Counties	1.0000000	10,199	\$4,100,000	\$402		grantor = non-strategic to Scott Paper (S.D. Warren subsidiary); grantee = private investment group from NH; medium-term timberland investment
10/07/93	James River Timber Corp.	John Hancock Mutual Life Insurance Co.	Several towns in ME, NH, VT	1.0000000	138,957	\$44,072,439	\$185	total sale = 238,868 acres	grantor = James River - operating mills without woodland; grantee = John Hancock - pension fund; 1st investment in the Northeast
08/22/94	IP Timberlands Operating Co., Ltd.	John Hancock Mutual Life Insurance Co.	Riley, Newry, & Andover, ME; northern VT	1.0000000	22,920	\$9,073,290	\$191	total sale = 47,458 acres; VT = 24,752 acres	grantor = selling non-strategic assets; mills are in Livermore Falls, ME and New York State
09/30/94	Godsoe	John Hancock Mutual Life Insurance Co.	Multiple Central Penobscot	1.0000000	43,899	\$9,100,000	\$207	Lake, pond, river frontage included	grantor = NIPF liquidating timberland holdings
12/01/94	Scott Paper Co.	SAPPI Ltd.	Westbrook, Skowhegan, Somerset County	1.0000000	911,000	N/A	N/A	Stock purchase price of \$1.6 billion included mills in MI & AL	grantor = industry to grantee = industry; stock purchase

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Date	Grantor	Grantee	Location	Interest	Acres	Price	\$/Acre	Remarks	Nature of Transfer
12/12/94	Georgia-Pacific Corp. (Hudson Pulp & Paper)	Dallas Company (Brochu of Stratton Lumber)	Dallas & Reddington	1.0000000	25,777	\$3,100,000	\$120	Below FMV sale	grantor selling non-strategic assets (Dallas Co. and Stratton Lumber Co. are one in the same)
12/15/94	Bowater, Inc. (Great Northern Paper Division)	John Hancock Mutual Life Insurance Co.	Holeb, Dennistown, Forsythe Attean	1.0000000	54,824	\$13,750,000	\$251	Several ponds	grantor selling non-strategic assets (Millinocket too far)
10/11/95	Hearst Corporation	Champion International Corp.	T25 MDBPP, Wesley, T31 MDBPP (Machias River)	1.0000000	28,814	\$4,655,000	\$162	Machias River frontage	grantor = previously Pejepscot Paper; liquidated all lands; grantee = very strategic Champion; tied together 100,000 acres
06/25/96	Diamond Occidental Forest Inc.	Robbins Lumber & Champion International	All of T40 MD & part of T3 ND	1.0000000	22,203	\$8,500,000	\$383	87 existing leases; wood supply agreement; Nicaous & West Lakes	grantor = James River parent company; operating mills without land base; grantee = Robbins owns pine resource and underlying land; Champion owns non-pine resource; strategic to mill
11/01/96	Oxford Paper Company	Mead Oxford Corporation	ME, NH, VT	1.0000000	550,000	N/A	N/A	Asset purchase includes paper mill; total sale = 667,275 acres	grantor = Oxford is the land-holding subsidiary; Boise Cascade is the parent company; selling non-strategic asset; grantee = core business
12/15/96	J.M. Huber Corporation	John Hancock Mutual Life Insurance Co.	Piscataquis & Somerset Counties	1.0000000	114,811	\$24,300,000	\$212	Traded for limited partnership interest	grantor = Huber striking strategic alliance; opportunity to diversify; traded for limited partnership in timberland fund in West & Southeast US
12/27/96	Lowell Associates	Up North Corporation (Leroy Martin)	Attean	1.0000000	15,980	\$4,500,000	\$282	Encumbered by conservation easement	grantor = NIPF (Boston family) liquidating ME holdings; grantee = logging contractor; trade bait or timber production
10/01/97	Crown Vantage	Yankee LLC	Coos County, NH and Upton, ME		18,000			total sale = 83,204 acres; 2/3 common undivided interest in Upton; ME = 18,000 equivalent acres	
10/27/97	Diamond Occidental Forest Inc.	Champion International Corp.	Central Maine	1.0000000	115,540	\$27,729,600	\$240	Supply agreement	grantor = selling last large landholdings; grantee = strategic to Champion
10/27/97	Diamond Occidental Forest Inc.	Champion International Corp.	Central Maine	1.0000000	22,776	\$10,249,200	\$450	Supply agreement	grantor = selling last large landholdings; grantee = strategic to Champion
12/20/97	International Paper Co.	Up North Corporation (Leroy Martin)	Big Six T6 R19 WELS (Somerset County)	1.0000000	23,000	\$4,900,000	\$213	Price = \$4.3 mm cash plus 6,800 acres of Martin's land in T11 R17 worth \$600,000	grantor = non-strategic to IP; grantee = NIPF to operate
11/12/98	SAPPI Ltd.	Plum Creek Timber Company	West-central Maine	1.0000000	905,000	\$180,000,000	\$199	Included some personal property; supply agreement	grantor = SAPPI - operating mill without land base; grantee = Plum Creek at the time of sale was a public limited partnership; 1st Northeast real estate investment trust; pure long-term timber plan
12/30/98	International Paper Co.	The Nature Conservancy	Upper St. John River	0.8479390	218,176	\$35,100,000	\$190	100% in 138,664 acres; 58% in 79,512 acres	grantor = non-strategic to IP; grantee = protection of St. John River; expect will trade pieces to acquire more river frontage

## Appendix A. Maine Land Sales -- 10,000 Acres and Larger -- 1990 through 1999

Date	Grantor	Grantee	Location	Interest	Acres	Price	\$/Acre	Remarks	Nature of Transfer
12/30/98	United Timber	New River-Franklin Ltd., Buckfield Timber Co.	Western Maine	1.0000000	90,500	\$22,000,000	\$243	Bankruptcy sale	bankruptcy sale; grantor = United Timber; largest pine mill in Northeast; asset liquidation; grantee = MacDonald is a family investment firm
12/30/98	Central Maine Power Company	Trust for Public Land	Bowtown - Somerset County	1.0000000	14,442	\$3,770,000	\$261	3 small ponds, extensive river frontage; may have sold @ bargain for a lower price	grantor = CMP; result of de-regulation; grantee = NGO; Pierce Pond watershed & Dead Rivers (later traded to Plum Creek)
03/04/99	Pingree Heirs	New England Forestry Foundation	Northern Maine	1.0000000	754,673	\$28,000,000	\$37	Proposed conservation easement; contingent on fund raising	grantor = NIPF (estate planning); grantee = sustainable forestry
03/12/99	Bowater, Inc.	J.D. Irving Ltd.	Aroostook County	0.9445000	1,015,565	\$220,000,000	\$229	Equivalent 959,218 acres (682,762 acres 100%); supply agreement	grantor = Bowater exiting Maine; grantee = strategic to mills
04/09/99	The Timber Company	Wagner Timber Partners LLC	Washington County	1.0000000	440,000	\$51,000,000	\$116	Encumbered by supply agreement	grantor = Georgia Pacific is parent company; divesting timberlands; operating mills without a land base; Timberland Company is the landholding subsidiary of GP; grantee = not public information
04/16/99	Bowater Inc.	Great Northwoods LLC (McDonald Investments); Yankee Forest LLC	Piscataquis & Somerset Counties	1.0000000	655,327	\$155,000,000	\$237	Encumbered by 3-5 year supply agreement	grantor = Bowater exiting Maine; grantee = private investor
08/17/99	Bowater Inc.	Inexcon of Maine, Inc.	Piscataquis & Penobscot Counties	1.0000000	416,877	\$250,000,000	\$600	Price includes 2 paper mills, hydro facilities	grantor = Bowater exiting Maine; grantee = Inexcon; one economic unit; future of spin-offs?
09/14/99	International Paper	Blanchette Lumber and Pelletier & Pelletier Logging	Clayton Lake Unit Aroostook County	1.0000000	245,000	\$47,500,000	\$194	Equivalent acres shown (4 towns with C / U interests)	grantor = selling non-strategic asset; grantee = Blanchette operates a softwood mill and Pelletier a logging contractor
			<b>Total Acres Transferred:</b>		<b>8,950,971</b>				
			<b>Number of Transfers:</b>		<b>34</b>				