

Large-tract Forestland Ownership Change: Land Use, Conservation, and Prosperity in Michigan's Upper Peninsula

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Additional Online Reference Material:

This report, as well as full research reports, data and other project information, is available online at <http://forestlands.mtu.edu>.

- Appendix A: *The Role of Corporate Timberland Ownership Change in Land Use, Conservation, and Local Prosperity in Michigan's Upper Peninsula*. Chris A. Miller, Robert E. Froese and Michael Hyslop. School of Forest Resources and Environmental Science, Michigan Technological University.
- Appendix B: *The U.P. Economy and the Role of Forest Products Industries*. Larry Leefers. Department of Forestry, Michigan State University, East Lansing, MI. January 22, 2007.
- Appendix C: "Upper Peninsula Forestry Changes: Overview of Local Regulatory Capacity." Brad Garmon and Ariel Shaw. Michigan Environmental Council. December 26, 2006.
- Appendix D: "Downeast Lakes Forestry Partnership: One Community's Response to Landowner Transition." Stacy Brown, National Wildlife Federation. Montpelier, Vermont. December 28, 2006

Executive Summary

Forested areas make up the majority of land cover in Michigan's Upper Peninsula (UP), representing approximately 8.5 million acres or 79% of the total land base. Over half of the employee compensation in the manufacturing sector in the UP comes directly from forest products industries.

However, Michigan's UP forestlands are undergoing a dramatic transformation in land ownership and economic makeup. More than one million acres of UP corporate forestland changed ownership in 2005 and 2006, moving primarily from traditional land owners directly tied to forest products industries (known as vertically integrated timber product companies, or VITPC) to large-tract forestland investors.

Two recent large-scale land sales underscore this change. In 2005, Plum Creek Timber Company, Inc. purchased 650,000 acres in the UP from Escanaba Timber LLC, formerly Mead Paper and MeadWestvaco. The purchase made Plum Creek, headquartered in Seattle, WA, the largest private landowner in Michigan. The second major land sale was in 2006 when International Paper (IP) sold 440,000 acres in the UP to the consortium of GMO Renewable Resources, LLC.

These two sales, moving large-tracts of forestland out of VITPC and into ownership by a real estate investment trust (REIT) and timber investment management organization (TIMO) respectively, essentially completed the transition of large-tract forestland ownership in the UP. The sales left Vulcan Timberlands as the last large-tract (greater than 10,000 acres) VITPC in the UP, and their registered commercial forest holdings of 13,871 acres are quite small by comparison to other large-tract owners.

Other recent notable sales activities include the purchase of 6,275 acres of land by the State of Michigan with assistance from The Nature Conservancy on the Keweenaw Peninsula; The Forestland Group, LLC's purchase of 390,000 acres from the Kamehameha Schools Trust of Hawaii; and We Energies' announcement of the potential sale of 11,000 acres in the Western UP. The Forestland Group, LLC purchase led to the Northern Great Lakes Project, in which The Nature Conservancy and the State of Michigan entered into an agreement with them to protect more than 271,000 acres.

Michigan is not alone. Nationwide in the ten years up to 2006, the forest industry—including familiar companies like International Paper Co., Meadwestvaco Corp., and Boise Cascade—have sold more than 31 million acres of forestland. According to a recent issue of the market trends newspaper *Marketwatch*, "about 25 million of the sold acres, or 80%, ended up in the hands of financial investors [that include insurance companies and specialized asset managers]. . . . The nation's 504 million acres of timberland, home to wildlife and the source of everything from deck frames to copy paper, have been the focus of a massive multi-year auction, the outcome of which is set to change the rules for wood companies and conservationists alike" (Madarno 2007).

"While these types of investors continue to log, their growing role in the industry has cast a long shadow over what happens to these forestlands 10 or 15 years from now, when some timber-oriented funds are scheduled to wind down their investment," says *Marketwatch*. As Bob Izlar, director of the University of Georgia's Center for Forest Business, told the magazine, "There's an uncertainty in the general conservation community about the long-term predictability that [these lands] will stay in timberland and won't go into a golf course."

The convergence of many factors, from global to local, is driving ownership change. Advances in technology, communications and transportation infrastructure have made the UP less "remote." Land use trends, population changes and demographics also play important roles. Additionally, the region is increasingly impacted by powerful dynamics in the national and global economy, as resource supply and demand respond to the increasingly "flat" world marketplace.

While the long-term implications of such dramatic and large-scale ownership changes for Michigan's Upper Peninsula remain unclear, many perceive an increased risk of large-tract forestlands being parceled into smaller ownerships. As parcelization increases and large-tract ownership is reduced, it has

been shown public access and wildlife habitat decline (Rinkus and Markham 2006, Nelson 2001, and Radeloff, et al 2005). This concern has prompted increasing interest in the future of the UP's economic makeup and its traditionally resource-based, rural communities.

This People And Land (PAL) project focuses on a central question of land use in Michigan's UP: How will such changes in ownership of large-tract forestland affect wildlife habitat, public access and the economy? The answers have significant importance for residents, businesses, the forest products industry and seasonal visitors to the UP, where outdoor pursuits and the access to large-tracts of timberland have been historical linchpins of the lifestyle and economy.

Specific questions have arisen regarding the potential for decreased economic viability of forestry as an economic force in the UP, increased fragmentation of the landscape, and reduced public access to forest lands (*Traverse City Record Eagle*, 2005). All are reasons for stakeholders to take an active role in learning about and planning for future UP forest management.

This report collects and presents a range of relevant ownership change data, scenario analysis, economic information, state and local tools, and recommendations to inform future debate, discussion and action. It is not intended to be the final word on the issue, but rather as an entry point to a conversation through education, information and analysis that might point the way to future tools, research needs and informational gaps.

The first section of this report examines ownership changes and presents scenarios for possible landscape fragmentation based on these trends. Part 2 focuses on the economy of Michigan's UP with a special emphasis on the role of forest products industries. Part 3 explains the range of existing tools and strategies currently available to help support the sustainability of contiguous, large-tract forestland ownership, including state incentives and local planning capacity. Finally, recommendations at the conclusion of the report suggest various changes communities and leaders can implement to help protect the traditional accesses and economic drivers the forests provide while embracing the shift in ownership patterns.

The goal of the project is to provide information to be used in the planning process and to inform the public debate about the menu of public policies, investments and incentives that might be appropriate to address the changes and forces impacting the UP.

Part 1. UP Forestland Owners and Potential Consequences of Ownership Change

Large-tract Forestland Ownership Types

Until very recently, the vast majority of corporate forestlands in the UP were owned by Vertically Integrated Timber Products Companies (VITPC). These were industrial owners of timberland, such as International Paper and Mead Paper, which viewed timberland as a means of assuring raw material supply for the various production facilities operated by these types of companies. These entities are typically publicly traded corporations whose primary financial concerns are after-tax earnings per share, cash flow and return on investment (Browne 2000). Timber harvest and management practices of VITPC generally reflected a long-term perspective.

Ownership by VITPC has been decreasing dramatically in recent years, with the new dominant UP forestland owners are primarily Real Estate Investment Trusts (REITs) and Timber Investment Management Organizations (TIMOs), both types of large-tract forestland investors.

The trend in Michigan is similar to that experienced nationwide in the ten years up to 2006, when traditional VITPCs (such as International Paper Co. and Meadwestvaco Corp., and Boise Cascade) sold more than 31 million acres of forestland, primarily to large-tract forestland investors.

A Real Estate Investment Trust (REIT) is a kind of company or trust that invests almost exclusively in real estate and is structured to change the way income is effectively taxed. By distributing at least 90% of income as dividends, income is taxed at the shareholder and not the corporate level (Matheson 2005), and effectively at a lower rate than it would have been if earned by a VITPC (Hickman 2007).

Nearly all publicly-traded U.S. REITs invest in industrial, retail or residential property and the emergence of the large-tract forestland REIT is a very recent phenomenon (NAREIT 2007). In 1999, the REIT Modernization Act permitted the establishment of Taxable REIT Subsidiaries (TRS), which permitted the parent REIT to operate as a real estate investment company while controlling traditional business units, such as processing facilities or real-estate development ventures, as subsidiary units (Matheson 2005). In 1999, Plum Creek converted from a VITPC to become the first large-tract forestland REIT, structured in this way.

Table 1. UP Land Use/Land Cover

Use/Cover	Area (million acres)
Forest Land	8.423
Wetlands	0.861
Agricultural Land	0.486
Rangeland	0.409
Water	0.242
Urban/Developed	0.171
Barren	0.017
Total	10.609

The “Investopedia Dictionary” defines a TIMO as a “management group that aids institutional investors [such as pension plans and endowments] in managing their timberland investments. A TIMO acts as a broker for institutional clients. The primary responsibilities of TIMOs are to find, analyze and acquire investment properties that would best suit their clients. Once an investment property is chosen, the TIMO is given the responsibility of actively managing the timberland to achieve adequate returns for the investors.” (Invest 2007). Many of these ownerships are closed-end funds with a 10–15 year time span for holding the asset. Some funds may be re-evaluated at the end of their cycle for hold/sell decisions. (Browne 2005)

Concise summaries of many of the issues and motivations that may have driven large-tract forestland ownership change to TIMO and REIT types are offered by Hickman (2007), Clutter et al. (2005) and Block and Sample (2001). Notably, ownership change would not have occurred if VITPCs were not motivated to sell. Taxation and accounting issues are not favourable for traditional VITPCs, and rising land value combined with the perception that open log markets could provide a reliable supply have eroded traditional arguments for the VITPC structure. Restructuring as a REIT captures tax and accounting advantages, and through TRS allows a REIT to function both like real estate and a forest products enterprise. REITs and TIMOs as real estate investments are appealing to institutional investors because of strong historical risk-adjusted returns, opportunity for portfolio diversification and as a hedge against inflation.

Stakeholders in many areas of the country have voiced concerns about the long-term outlook for forestlands under the management of REITs and TIMOs, when compared to management by a VITPC. According to *Marketwatch*, “While these types of investors continue to log, their growing role in the industry has cast a long shadow over what happens to these forestlands 10 or 15 years from now” (Madarno 2007). So far, there is little evidence to suggest REIT or TIMO owners will employ different management practices on lands purchased or converted from VITPCs and retained in their timberland portfolios (Hickman 1997; Block and Sample 2001).

One of the primary questions expressed about the transition to primary ownership by REITs and TIMOs is whether, under these management regimes, forestlands of “higher and better use” might not become more prone to parcelization than under previous VITPC management. For example, Plum Creek has an active real estate development business through a TRS that contributes a sizeable portion of operating income (Plum Creek Timber Co. 2007).

In this scenario, divestiture into smaller-parcel ownership pattern could make forest management planning for wildlife and ecosystem values more difficult, and perhaps increase the possibility that development and seasonal home construction in higher-value parceled lands could occur.

Such outcomes, if realized, could impact the long-term economic outlook of the forest products industry in the UP, with far-reaching implications for the social, cultural and environmental character of the region. However, it is too early to tell definitively when or if such changes might occur under the new ownership regimes. Many factors, including land values, demographics, markets, and forest products profitability, will determine the future land use patterns of the UP.

Current Land Cover and Timberland Ownership. The UP land base is approximately 10.6 million acres. The distribution of these lands in terms of use and coverage are shown in Figure 1 and detailed in Table 1.

Forested areas make up the majority of land cover in the UP, representing 79% of the total land base. Public lands, represented by federal and state ownerships or rights (excluding mineral rights) constitute the approximately 4.2 million acres shown in Figure 2. The remaining approximate 4.2 million acres of UP forestland are owned by a mixture of entities such as private individuals, corporations, various organizations including conservation groups and local governments. A summary of the acres of forest land ownership by class (corporate, state and federal) is shown in Table 2.

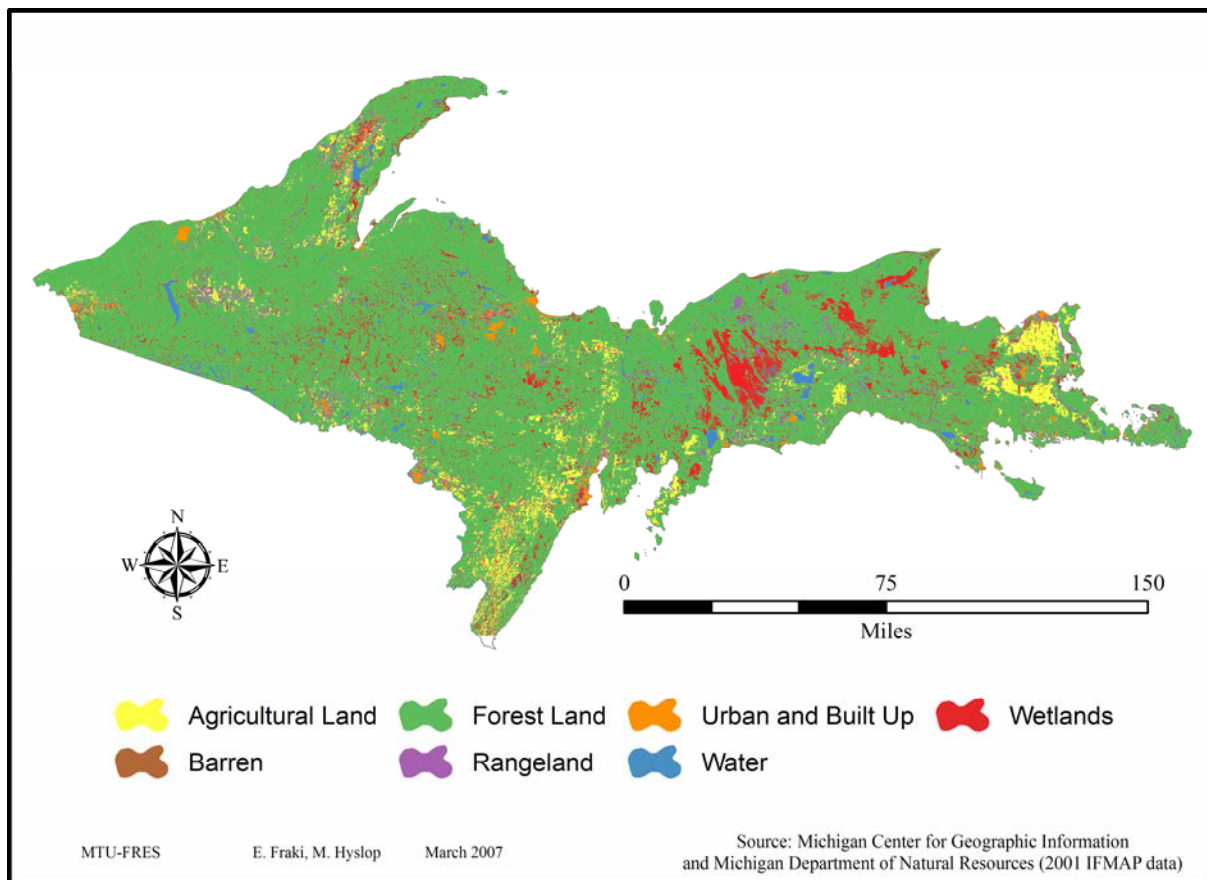


Figure 1. Land Use and Land Cover for the Upper Peninsula, Michigan.

Table 2. Forest land area (acres) by major owner class.

County	Owner Class			Leading Corporate Owner
	Corporate	State	Federal	
Alger	166,993	99,485	158,599	Forestland Group
Baraga	201,667	80,244	44,673	Plum Creek
Chippewa	31,609	225,977	242,762	Plum Creek
Delta	60,233	71,564	244,397	Plum Creek
Dickinson	46,571	228,916	0	GMO Renewable Resources
Gogebic ¹	156,944	21,116	305,714	Keweenaw Land Association
Houghton	143,531	63,252	155,839	Forestland Group
Iron	170,781	99,255	176,496	Forestland Group
Keweenaw ²	144,913	4,948	0	GMO Renewable Resources
Luce	109,916	298,061	0	Forestland Group
Mackinac	19,109	209,397	152,150	Plum Creek
Marquette	350,621	270,692	18,147	Plum Creek
Menominee	100,311	100,299	0	Plum Creek
Ontonagon	153,065	77,578	284,062	Plum Creek
Schoolcraft	62,255	297,949	215,347	Plum Creek

¹Gogebic County also has 50,290 acres of county forest in public ownership.

²Keweenaw County areas exclude Isle Royale.

Large corporate land owners, which are the focus of this study, have had most of their lands enrolled in the Michigan Commercial Forest (CF) program. The CF program provides a property tax incentive for landowners to encourage long-term commercial forestry management in exchange for public access for hunting and fishing. A summary of these owners and the total CF enrolled acreages are shown in Table 3. Ownerships shown in this table do not reflect more recent transfers, such as the GMO Resource Management acquisition of International Paper holdings.

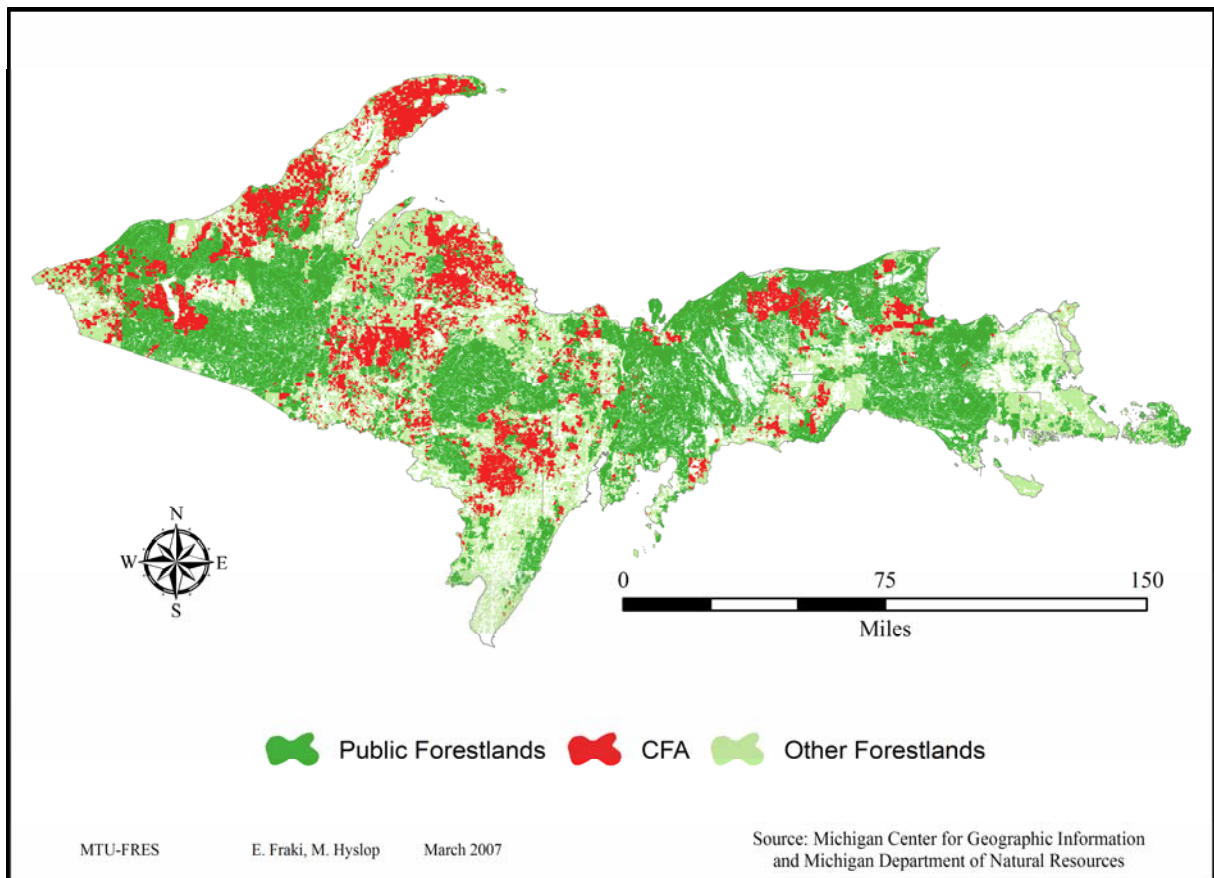


Figure 2. Forestlands in the Upper Peninsula, Michigan. Public forestlands are almost entirely comprised of National and State Forests. Both CF and Other forestlands are held by a mix of corporations, trusts and private individuals.

In Michigan, the transition from VITPC ownership to large-tract forestland investors is essentially complete. The 2005 announcement of International Paper's transfer of timberland holdings to GMO Renewable Resources, a TIMO, leaves Vulcan Timberlands as the only remaining large-tract VITPC (greater than 10,000 acres) in the Michigan UP, and their registered CF land holdings of 13,871 acres are quite small by comparison to other large-tract owners.

Vulcan is also relatively unique, in that it has been a long-term holder of UP timberland, active in timber sales with production facilities through partnership of Vulcan Bowling Pin Co. and Brunswick, Inc. (Vulcan 2005). Vulcan has holdings in Houghton and Ontonagon Counties with the majority in Ontonagon County. In both counties, Vulcan's holdings have shown slightly increasing and relatively stable ownership.

Overall, ownership of UP forestland by TIMOs is increasing at a higher rate than other types of owners. With the transfer of International Paper land to GMO, the TIMO owner-type category represents the largest holder of UP private timberland. The Forestland Group has holdings in all counties except Delta, Dickinson, Mackinac and Menominee, with the largest ownership in Alger County (See Appendix A).

By owner-type, REITs are the second largest holder of UP timberland. The REIT owner-type is represented in large-tract holdings in the UP by Plum Creek Timber Co., the largest single forestland owner. Plum Creek was the first REIT and is the largest private owner of timberland in the U.S., with the majority of its UP holdings obtained from Escanaba Timber Co. in 2005 (Plum Creek 2006).

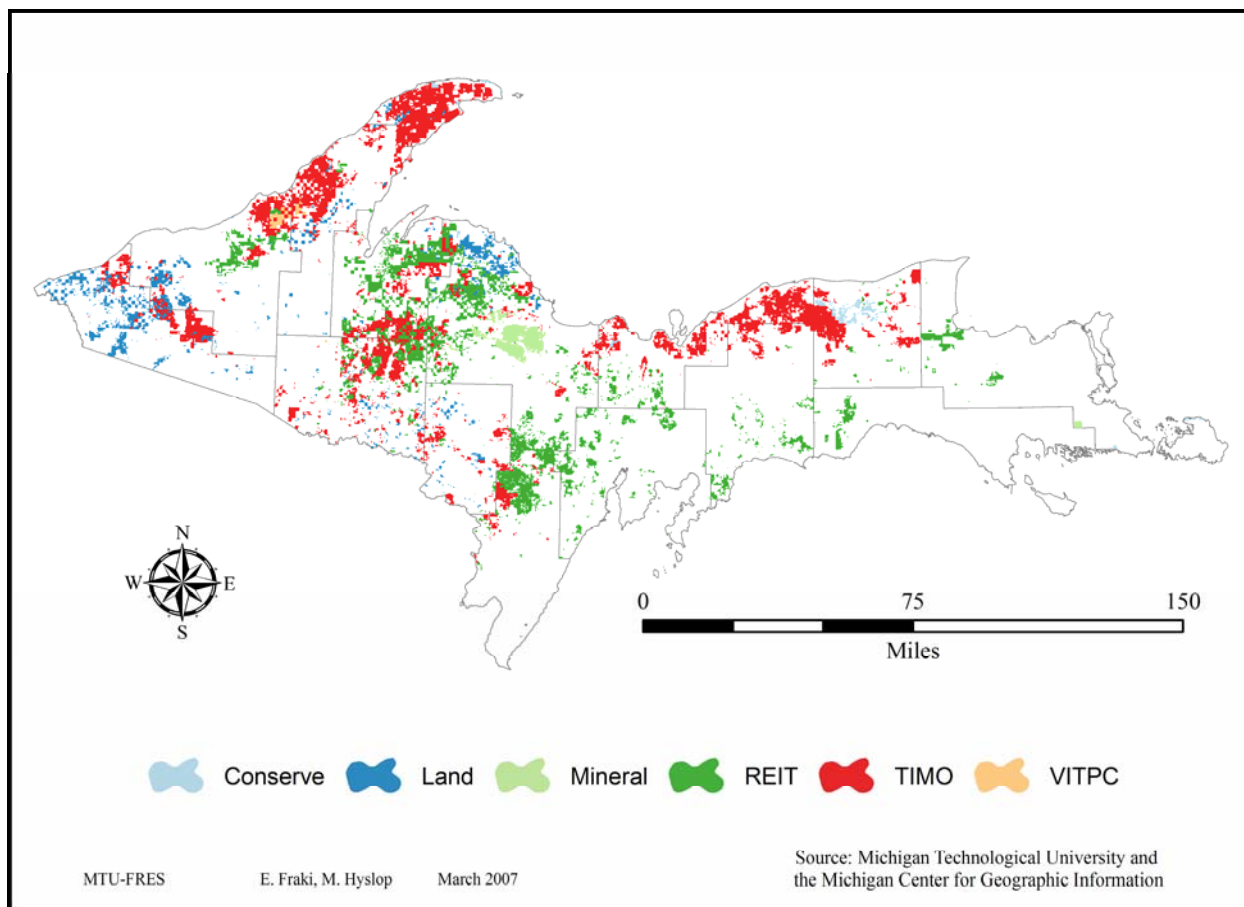


Figure 3. Current Large-tract Corporate Ownership in the Upper Peninsula, Michigan. Sampling date varies by county; thus, the figure is only indicative of general trends.

Table 3. Leading UP CF Land Owners as of August 2006.

Entity	Owner Type	CF Acres
Plum Creek Timber Company, Inc.	REIT	633,900
Forestland Group, LLC	TIMO	518,050
GMO Renewable Resources, LLC ¹	TIMO	419,930
Keweenaw Land Association, Ltd.	LAND	144,900
Longyear holdings	LAND	65,351
Nature Conservancy	CONSERVE	23,076
Cleveland Cliffs Iron Company, Inc.	MINERAL	15,540
Vulcan Timberlands, Inc.	VITPC	13,871
Group Total		1,834,618

¹ Note: The actual owner of the reported CF Acres as of August 2006 was International Paper, Inc. Precisely how many acres were retained in CF after the transfer to GMO Renewable Resources, LLC is not known.

A spatial representation of the present large private timberland owners by owner-type is shown in Figure 3. This figure is a generalized representation of current large-tract UP timberland holdings because the most recent inventory year varies by county (2002-2006). Thus, the figure does not reflect actual ownerships at any specific point in time, but is indicative of the general pattern.

Risks and Implications of Forestland Parcelization.

The transfer of large-tract forestland ownership from traditional industrial to large-tract forestland investors is nearly complete in the UP. The nearly two million acres of investor holdings in the UP approximate a quarter of total timberland, with public holdings accounting for another 50%. The remaining 25% constitute a significant land use uncertainty.

While much may be unknown of actual ownership motivation and future direction of large-tract corporate timberland owners, the majority of these owners currently hold third-party certification for sustainable forestry practice, such as SFI, FSC or both. Most lands are also enrolled in Michigan's CF Program, allowing certain levels of oversight and disclosure of management actions.

One of the primary questions arising from the recent corporate timberland sales is that contiguous forested lands might become more fragmented as a result of "parcelization," defined as "the subdivision of land under a single ownership into smaller parcels under a diverse ownership" (Drzyzga and Brown 2002). Fragmentation refers more to physical landscape changes in the size and shape of forestlands. Parcelization has been shown to be a frequent precursor to fragmentation (Radeloff, et al 2005; Rinkus and Markham 2006).

As parcelization increases and large-tract ownership is reduced, it has been shown public access and wildlife habitat decline (Rinkus and Markham 2006, Nelson 2001, and Radeloff, et al 2005). The associated infrastructure (roads, buildings, etc.) that often follows parcelization leads to forest fragmentation that jeopardizes large mammal and bird habitats (Radeloff, et al 2005). These habitats are disrupted by factors such as human activity, destruction of connecting pathways between areas of forest cover and decreased area of interior forest and forest edge environments (Bryan 2004).

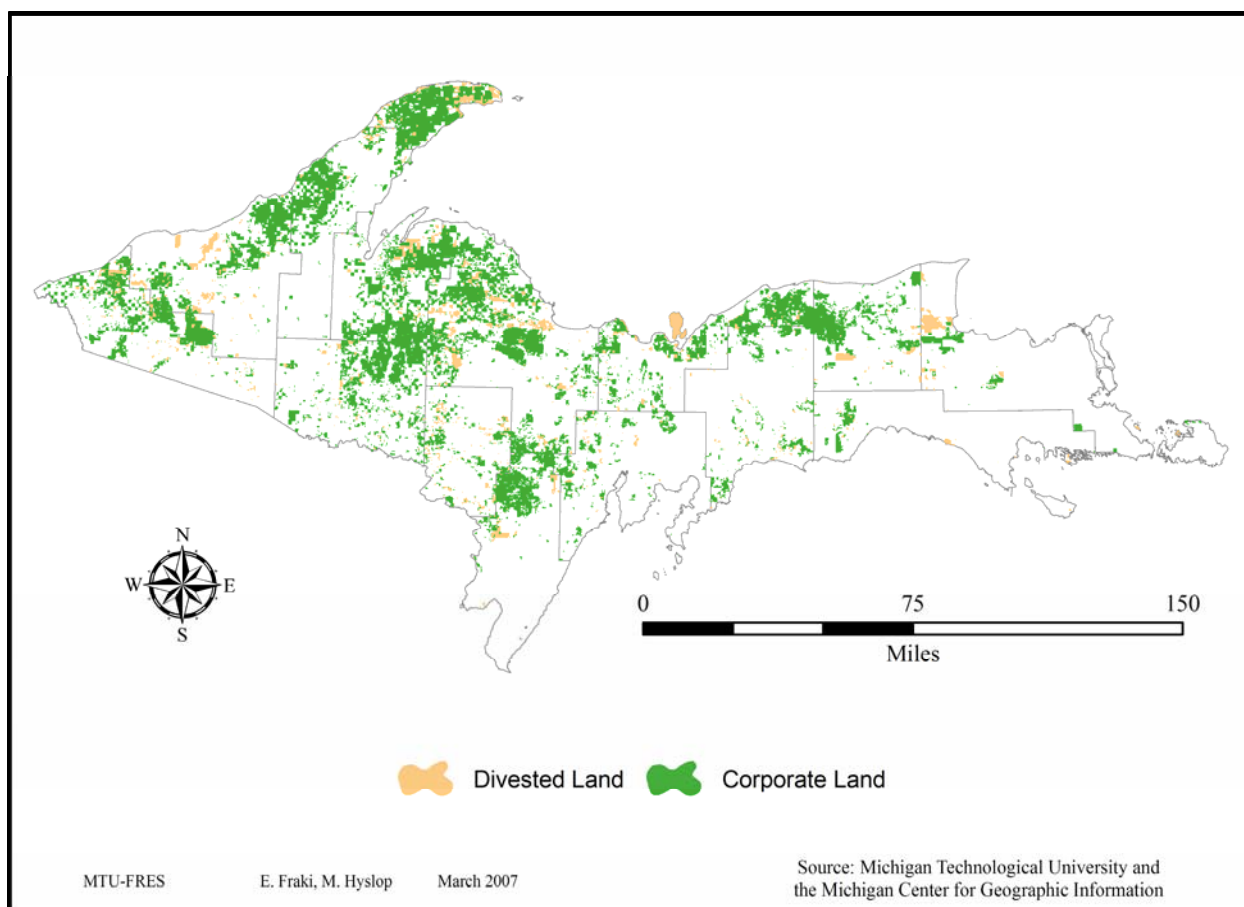
Habitat loss and fragmentation are two of the most direct impacts of development on previously undeveloped land. Fragmentation negatively affects wildlife in a number of ways, including interfering with wildlife travel, decreasing habitat size, and reducing interaction with other wildlife communities. Fragmentation produces declines in both the number of species (diversity) and populations (abundance). Studies suggest that habitat destruction is the main factor threatening 80 percent or more of the species listed under the federal Endangered Species Act. According to research, more than 95 percent of listed species are endangered to some extent by habitat loss or alteration (EPA 2001).

Large-tract corporate lands divested into smaller-tract ownership during the past 20 years are indicated in Figure 4. Because the two points in time used to determine ownership change vary by county, this representation is very simplified and should be interpreted with caution.

The nature of corporate forestland holdings is changing as a result of such transfers. For example, in Keweenaw County not only did total large-tract holdings decline, from nearly 168,000 acres to 145,000 acres, but many measures of parcelization indicate an increasingly fragmented corporate land base. In the county, while the number of contiguous corporate forest land parcels was nearly constant between 1994 and 2006, the number of parcels less than 40 acres in size nearly doubled, and mean parcel area declined from more than 9,000 acres to about 5,000 acres. In other UP counties, mean parcel size has increased over time, but this can be due to divestiture of smaller parcels or strategic acquisitions designed to make holdings contiguous to decrease the cost of forest operations.

In general, contiguous corporate holdings have been decreasing in maximum area, with the exception of Iron, Chippewa, Luce and Schoolcraft Counties. Of the four counties, all but Iron had slight increases; in Iron County, the larger increase is attributed to a sizeable transfer to The Forestland Group (i.e., increases were attributed to land held by owner-type “other” being transferred into the “corporate” category).

To highlight corporate lands that might have a relatively high potential for alternative use, buffers were created around landscape features that might affect this value, including lakes, rivers, shoreline, roads and urban areas. These features follow Michigan Geographic Framework definitions. In the case of roads,



**Figure 4. Large-tract Corporate Ownership in the Upper Peninsula, Michigan.
The date varies by county, ranging from 2002-2006.**

those included were state and federal highways, major and minor arterials, general non-certified roads, and U.S. Forest Service roads. For lakes, those bodies of water greater than or equal to 10 acres in size were buffered. Rivers, including creeks and streams, are those bodies that may be intermittently dry, but are large enough to be identifiable without vegetation covering the water body from bank-to-bank.

Once constructed, these buffers were merged and intersected with corporate holdings to measure the amount of corporate land that fell within the buffered regions. Regions were defined as lands that fell within 5 miles of urban areas and 0.25 miles of other features. While the most recent sampling dates vary across counties from 2002 to 2006, the percentage of corporate land falling within the buffered regions is quite pronounced, ranging from 37% in Mackinac County to 75% in Marquette County (Table 4). A map of the total area falling within all buffers is shown in Figure 5.

Table 4. Corporate Forestlands falling in areas that might define relatively higher alternative land uses.

County	Sampling Date	Corporate Land Area within Buffered Feature (acres)			Percent of Total Corporate Land Area within Buffers
		Rivers and Lakes Only	Shoreline Only	All Features Together	
Alger	2004	59,538	608	108,656	65
Baraga	2002	101,583	184	128,108	64
Chippewa	2003	11,411	431	15,028	48
Delta	2005	18,681	31	26,686	44
Dickinson	2006	9,162	0	22,808	49
Gogebic	2003	59,033	995	88,851	57
Houghton	2006	46,842	1,540	92,326	64
Iron	2002	62,515	0	98,358	58
Keweenaw	2006	55,772	2,912	58,141	40
Luce	2005	34,158	83	47,980	44
Mackinac	2006	4,302	108	7,019	37
Marquette	2006	158,946	508	264,235	75
Menominee	2003	26,828	0	47,890	48
Ontonagon	2003	64,811	185	77,070	50
Schoolcraft	2005	20,724	43	30,687	49

Based on these buffers, changes in ownership within specific land categories were examined in more detail. Lands in these buffers indicate lands being divested out of large-tract corporate ownership into smaller-tract ownership, and thus reflect acreages more likely to be subject to the negative forest management trends associated with parcelization:

- *Land Adjacent to Great Lakes Shoreline* - Corporate-owned lands adjacent to Great Lakes shoreline in the UP generally decreased over all sampling periods. Of the 13 counties with shoreline, three began and ended their respective sampling intervals with zero frontages – Delta, Menominee and Schoolcraft. Luce and Baraga Counties showed 100% divestiture of these types of corporate lands. One county, Marquette, had a slight (77 acre) increase in shoreline area over the period 1995 to 2006 ending at 193 acres. Keweenaw had the largest holdings of shoreline area, approximately 1,600 acres based on the current sample date of 2006, representing a decline of approximately 49% over an 11-year period. The least amount of remaining corporate shoreline area was found in Ontonagon County (27 acres) from 2003 data resulting from an estimated 81% decline over ten years.
- *Land Adjacent to Urban Areas* - No increases in corporate land adjacent to urban areas were found across the counties. Seven counties were constant at zero adjacent area for their respective sampling intervals. Marquette County has the largest area of adjacency with 8,952 acres from its current sampling date of 2006, an approximate 38% decline in area over an 11-year period. Baraga County ended its sampling period 100% divested of such lands. Delta County, sampled in 2005, showed the least remaining adjacent area (18 acres), an approximate 92% decline over a 15-year interval.
- *Land Adjacent to Lakes* - All counties contain corporate land adjacent to inland lakes, with the exception of Mackinac, which was 100% divested at the time of the 2006 sampling date. Marquette County showed the largest area of adjacent corporate lands with 21,792 acres from its current sampling date of 2006, a 28% decline over an 11-year period. Delta County had the least area (320 acres) based on a 2005 sampling date, following an approximate 28% decline over 15 years.

- *Land Adjacent to Rivers and Roads* - Large corporations hold forestland adjacent to rivers and roads in all counties. Declines in these areas were found over the various sampling periods in all counties, except for slight-to-moderate gains in Baraga, Iron, Schoolcraft and Houghton Counties.

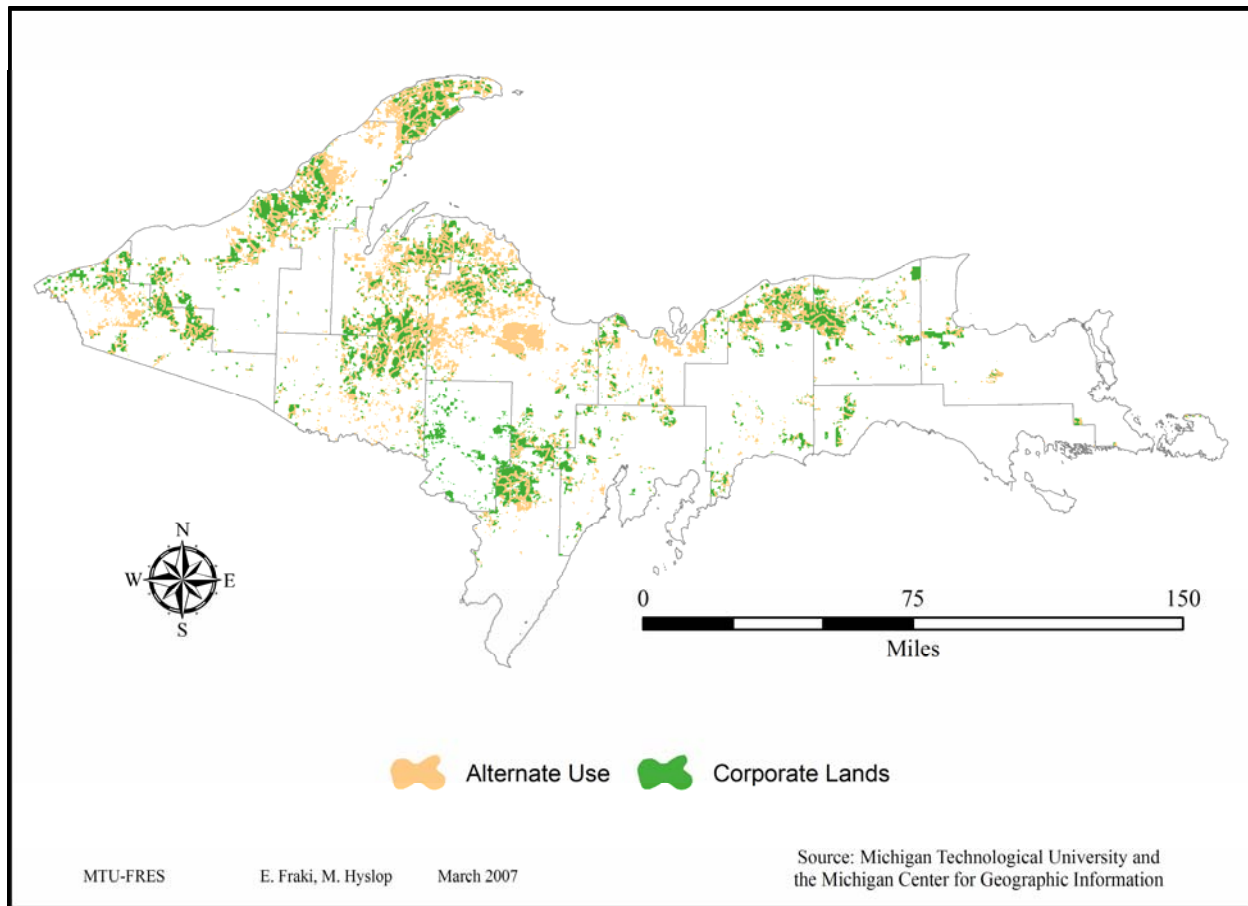


Figure 5. Potential Corporate Timberland of Higher Alternative Use Value.

Part 2. The Role of the Forest Products Industry in the UP Economy

In 2003, the UP accounted for 3.2% of the Michigan population, 3.7% of the state's establishments, 2.0% of the state's employee compensation, 2.7% of the state's employment, and 1.9% of the state's industry output/sales. With 15 of 83 counties, it contributes a fairly small portion of economic activity. And it is relatively worse off economically on average than many parts of the state. For example, average employee compensation in the UP is 73.6% of the state's average, and unemployment rates are generally higher in the UP than in the state as a whole.

However, almost half of the manufacturing jobs in the UP were associated with the forest products industries in 2003. Forestry and logging and agriculture and forestry support services were also significant employers in the UP. More than one-quarter of the manufacturing establishments in the UP are in wood products manufacturing and paper and paperboard manufacturing.

Average weekly employee compensation in forest products industries for the UP exceeded averages for the state as a whole for forestry and logging, wood products manufacturing, paper and paperboard manufacturing and wood furniture manufacturing. The utilities, management of companies, mining and manufacturing sectors have some of the highest average compensation levels in the UP.

Land-use changes can affect the vitality of forest products industries, and these industries have connections for many other industries in the region. Forest products industries cover an array of economic sectors (see Appendix B). Each of these sectors has its own unique linkages to other parts of the UP economy, and to state and regional wood products companies.

Forest products dependency. Concentration of economic activity based on forest products industries provides a measure of the importance of the industries within the state, regional and county economies. Though forest products industries' output and sales were over \$11 billion in 2003, they only accounted for 1.6% of the state's total output (Appendix B, Table A1, Figure 6). The percentage of jobs attributed to the industries accounted for 1.1% of Michigan's employment. The UP regional role was significantly higher. Almost 20% of total UP output was directly associated with forest products industries, along with approximately 6% of employment.

Data in Figure 11 do not include other sources of economic activity directly related to the forest products economy in the UP. For example, the Michigan Department of Natural Resources and the USDA Forest Service make payments in lieu of taxes and other payments to local governments annually that are associated with forest land ownership and timber production (Leefers et al. 2003, Tessa Systems, LLC 2006). These payments total over \$6 million annually.

In addition, many of the agencies' employees work on preparing and administering timber sales. These activities are captured under government sectors rather than the forest products industries. Finally, employees' and agencies' expenditures in these government sectors provide additional economic inputs into the regional economy.

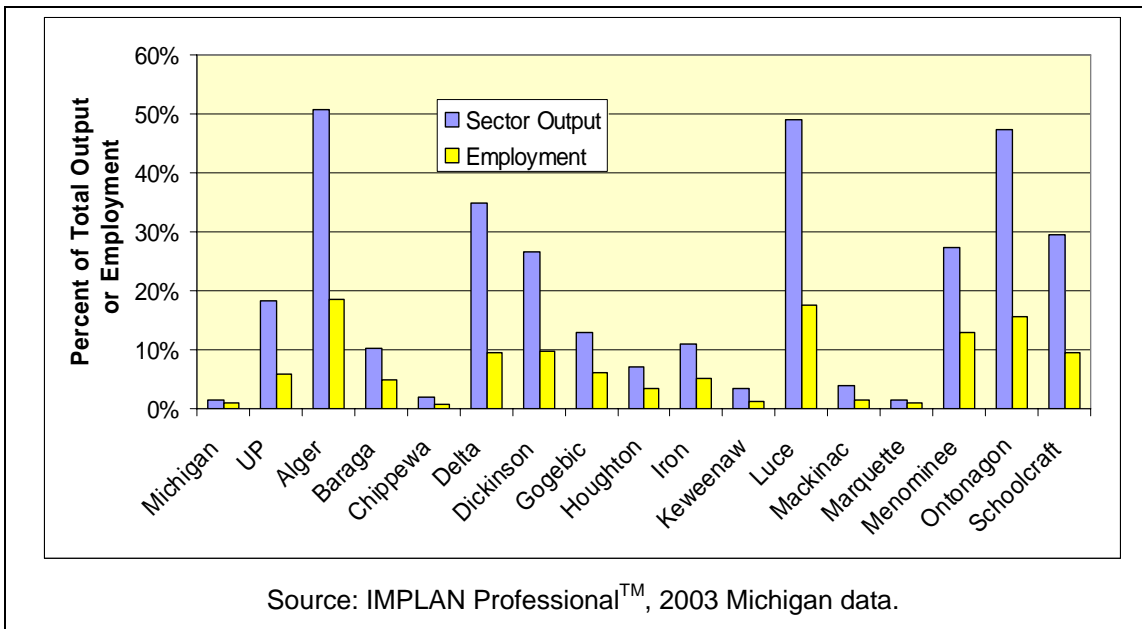


Figure 6. Percent of output/sales and employment (dependency measure) in forest products for Michigan and the Upper Peninsula and by county, 2003.

Forest Production. To provide context for assessing potential effects of land use change on the economy of the UP, and especially on the forest products industries, it is useful to examine forest production. Many tables and figures in this section were adapted from Tessa Systems, LLC (2006) with permission. More detailed tables, figures and discussion are available in the Social and Economic Assessment for Michigan's State Forests (Tessa Systems, LLC 2006).

Forest products industries are often classified as producers—logging and trucking firms that extract trees from the forest, primary manufacturers—firms that convert those trees directly into products, and secondary manufacturers—firms that take primary products and add value to create further-processed, “value-added” products. Sawmills, for example, would be primary manufacturers, whereas firms making wood windows and doors would be secondary manufacturers. Some firms are vertically integrated; for example, they may harvest logs, produce lumber and manufacture wood products.

Based on Michigan Department of Natural Resources data, there are more than 12,000 jobs associated with forest products industries in the UP. Most of these jobs are located in the Western Upper Peninsula. Likewise, most logging/trucking, primary manufacturing and secondary manufacturing firms are located in the Western UP.

Tourism. Tourism is an important industry in Michigan, though it is not defined by the federal government (i.e., NAICS) in the same manner as forest products industries. This is due to the nature of tourism linked to many sectors—accommodations, food services, drinking places, and so on. Stynes (2002) estimated that tourism spending in Michigan totaled \$9.5 billion in 2000 (adjusted to 2003 dollars). Of this, \$750 million was associated with counties in the UP, or about 8% of the state’s total.

In comparison, the forest products industry had statewide sales of \$11.2 billion in 2003 (Appendix B, Table A1, from IMPLAN) with \$2.5 billion of those sales in the UP, comprising about 22% of the state’s total.

Tourism tends to have a strong association with seasons; employment tends to be highest during the summer and fall months in Michigan, and unemployment is high during the winter and spring months. Tourism is often associated with lower wages (Table 6). Nonetheless, according to a recent U.S. Department of Agriculture Economic Research Service (ERS) study, development of recreation and tourism in rural counties yields many positive results (Reeder and Brown 2005). The study included 311 non-metro recreation counties, sometimes called recreation-dependent counties. All Eastern UP counties and four Western UP counties were included in the study.

Reeder and Brown (2005) found that the overall effects of tourism development were positive. Recreation and tourism development was associated with increased employment rates, earnings and educational attainment, and decreased poverty rates.

Notably, the average population growth in recreation-dependent counties was 20% from 1990 to 2000.

Case Study: Snow Sports See Change in Public Access

Ed Stielstra, owner of Nature’s Kennel Sled Dog Racing in McMillan, Michigan, sees more forest land than most – conducting sled dog tours for customers and training his teams throughout the eastern UP.

His recent experience parallels other anecdotes of gates appearing across trails and hunters lamenting an increase in “No Trespassing” postings on the edges of woodlots. Together, they suggest that new land ownership patterns in the UP are changing traditional public access to large tracts of forest.

“It’s a two-track that might cross somebody’s 40 (acres),” Stielstra said. “And one day it’s blocked off. Oh my, you hear stories like that all the time.”

Stielstra suggests the problem is two-fold: Compared to traditional large-tract forestland owners, smaller-tract landowners appear more likely to restrict access for privacy; and landowners of all tract sizes, and also the State of Michigan, appear to be enforcing the CF’s access provisions (which allow only hunting and fishing access by foot travel) more stringently.

In Stielstra’s personal experience, large-tract landowners like The Forestland Group, LLC have granted him permission to run sled dog teams through their land, but only if he provides proof of liability insurance. Casual hikers or hunters on a motorized vehicle don’t have such insurance.

Forestland Group and other owners are only abiding by the law and protecting themselves from liability, he said. “The problem isn’t the big land owners,” he said. “The problem is in our laws.”

Linkages Between the Forest Products Industries and Other Sectors of the Economy of Michigan's Upper Peninsula.

Linkages between the forest products industries and other sectors of the economy are numerous. Establishments purchase goods and services directly from other establishments. The other establishments purchase goods and services from others. These additional purchases “ripple” through the economy, creating indirect effects, and the effects of changes in household expenditures (from compensation) are called induced effects.

The combination of direct, indirect and induced effects measures the total economic impact of a change in economic activity, such as the opening or closing of a mill. The total economic impacts differ by sector, but are often twice as large as the direct impacts. Substantial changes may exceed estimated impacts because they can create structural changes in the economy.

Central to this project is the linkage between changing landownership in the UP and its consequences. Though the potential ramifications of the change have not been enumerated, two aspects of linkages are presented. First, forest products industries purchase goods and services from other sectors of the economy. If those sectors are influenced by the change in landownership, the forest products sectors are potentially affected. Second, and more explicitly, if the change leads to some direct economic decisions or activities, then those impacts can be estimated. Several examples are presented to illustrate the magnitude of these potential changes.

Linkages between sectors. The relationship or linkage between the industry sector of interest and other sectors has been quantified by tracing the cost components of production. These linkages show the dollar inputs (or actually cents) required to produce one dollar of output in the sector (Figure 7). The linkages are based on nationwide relationships, but can be modified locally.

Economic structure within a region, however, is based on survey data from the region. A major part of most production functions is Value Added—employee compensation, proprietary income, other property type income (including profit), and indirect business taxes used to produce outputs (MIG, Inc. 2004).

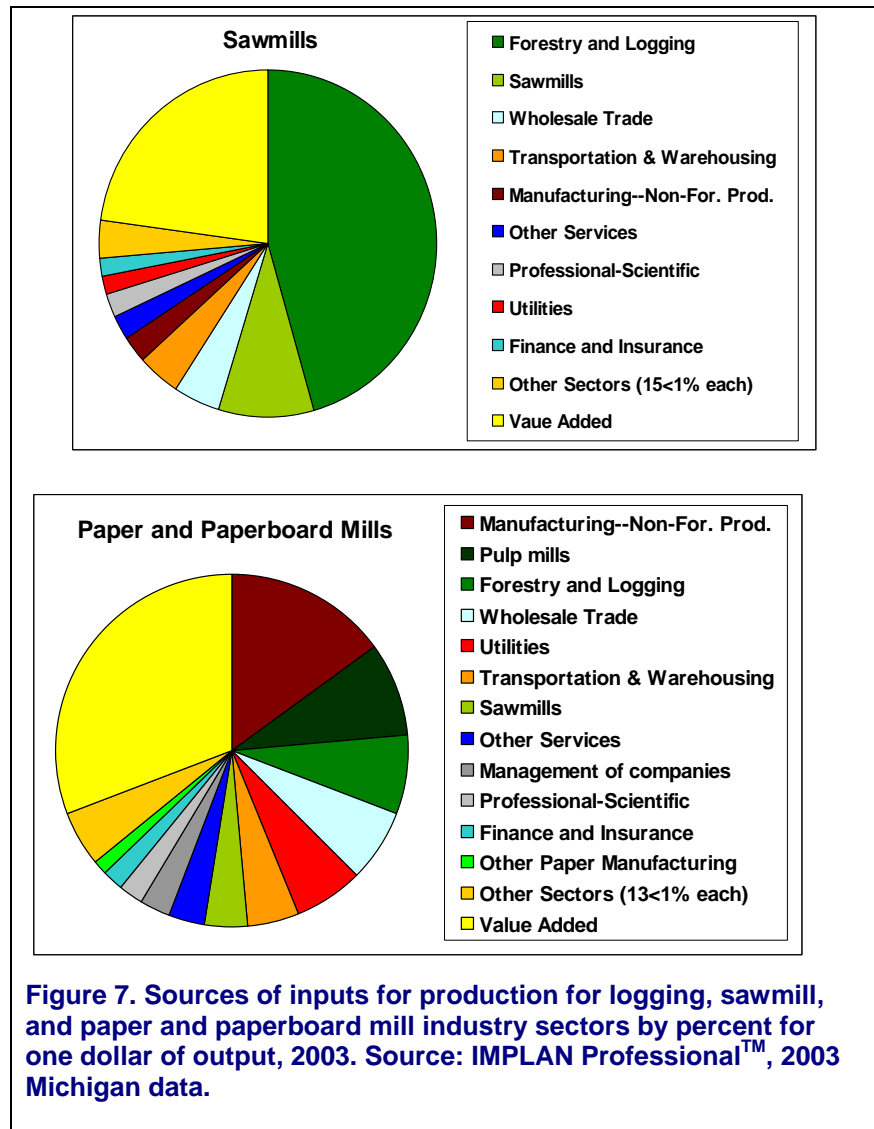


Figure 7. Sources of inputs for production for logging, sawmill, and paper and paperboard mill industry sectors by percent for one dollar of output, 2003. Source: IMPLAN Professional™, 2003 Michigan data.

Hence, the price of the value-added product reflects labor, private business owners' income, rents, profits and sales and excise taxes used in the production process.

The composition of the production function varies by industry (Figure 7). The production functions highlight the many linkages between sectors. And each of those sectors is, in turn, linked to others. Linkages are often called backward linkages or forward linkages. One backward linkage for the sawmill sector is forestry and logging, the source of logs. For the forestry and logging sector, sawmills and paper and paperboard mills are forward linkages; that is, they purchase commodities sold by the logging and forestry sector.

Forest products industries outlook. Several government and private sources provide projections and economic outlooks for the U.S. economy and various economic sectors. These projections are often tied to a set of assumptions. For example, the Bureau of Labor Statistics' (BLS) Monthly Labor Review (Saunders 2005) provided industry output and employment projections with some of the following standard disclaimers: no major wars, no natural catastrophes and no other unanticipated factors that could upset the behavior of the projection models. While these factors do not currently hold given recent hurricanes and ongoing wars, the overall U.S. economy is still on a growth trajectory. BLS projections are published in November of odd years and provide a long-range (10-year) estimate of employment and output by major industry sectors.

Berman (2005) reported a mixed picture in BLS' projected forest products industries employment and output in the U.S. for 2014. Projected gains in employment in wood products manufacturing (sector 321) offset losses in forestry and logging (sectors 1131 and 1132), paper manufacturing (sector 322) and furniture and related product manufacturing (sector 337). In total, employment in forest products industries nationwide was projected to be relatively unchanged. Projected increases in output were expected in all sectors except forestry, which was projected to remain unchanged.

The overall picture for forest products industries is one of continuing threats from lower-cost international competition. As part of this situation, softwood logs and lumber exports have declined in recent years, whereas hardwood logs and lumber exports have increased. For example, softwood lumber imports from Canada have a significant part of the US market. In the case of some hardwoods, the logs or lumber are exported, transformed to end products such as furniture, and then shipped back to the US for sale

Three other forces will have unknown impacts on forest products industries: biofuels, forest certification and carbon markets. Each of these areas has the potential to positively affect forest products industries in Michigan.

Part 3: Strategies and Capacity to Support Forestland in the UP

In a survey of 404 registered voters in the UP (EPIC-MRA 2002), respondents ranked forest habitat destruction and over-development of lands adjacent to rivers, lakes and Great Lakes shoreline as the most significant challenges to conservation and recreation. Natural amenities, such as lake and river frontage, and infrastructure proximities such as roads and urban areas, have a clear influence on population and development distributions (Gustafson, et al. 2005). Studies have shown that value and tendency for parcelization of forestland increases in proximity to these features (Benson 2006, NFLC 1994).

Market Strategies for Reducing Potential Fragmentation. With 19.3 million acres of forest land, covering 53% of the state, several incentive programs have been created to address forestry practices in Michigan. All programs are voluntary, at the discretion of the forest landowner. Among them are the Commercial Forest Program, Community Forestry Grants, Forest Stewardship Program and the Forest Legacy Program. These programs are designed to complement one another and also to complement other federal programs.

- Commercial Forest (CF) program.* The principal policy associated with private forest lands in Michigan is the Commercial Forest program (Natural Resources and Environmental Protection Act 451 of 1994, Part 511). The act encourages private landowners to retain and manage forestland for long-term timber production by providing a property tax reduction in exchange for access by hunters, anglers and trappers. Approximately 2.2 million acres are enrolled in the CF program. The continuation of this program is a key element in maintaining accessible, working private forests in Michigan.

Table 5. Ownership Distribution of UP Registered CF Lands.

Area (acres)	Corporate and Organizational Ownership		
	Number of Owners	Represented Area (acres)	Percent of Total
500,000 or more	2	1,151,950	53.4
100,000 -499,999	2	564,829	26.2
50,000 - 99,999	1	65,351	3.0
10,000 - 49,999	3	52,486	2.4
1000 - 9,999	33	107,443	5.0
less than 1,000	133	37,351	1.7
Total	175	1,979,410	91.8
	Private Individual Ownership		
1000 -9,999	22	42,214	2.0
less than 1000	951	135,713	6.3
Total	973	177,927	8.2
Total Upper Peninsula CF lands		2,157,337	100
Total Upper Peninsula CF land owners		1,148	-

Source: MiDNR Hunter List 2006

Many of the lands recently sold or transferred in the UP are enrolled in the CF program, which provides a property tax incentive for landowners to encourage long-term commercial forestry management in exchange for public access for hunting and fishing. Once enrolled, penalties for program withdrawal are formulated from local assessments and help stabilize the long-term management objectives. CF enrolled lands itemized under broad ownership categories are shown in Table 5.

As seen in Table 5, 85% of the more than 2 million acres of CF enrolled timberlands are owned by eight entities, with over half of the total enrolled land owned by just two corporate entities. This study focuses on the holdings of those eight major corporate entities. A depiction of the leading CF timberland owners in relation to total CF enrolled lands in the UP is shown in Figure 8.

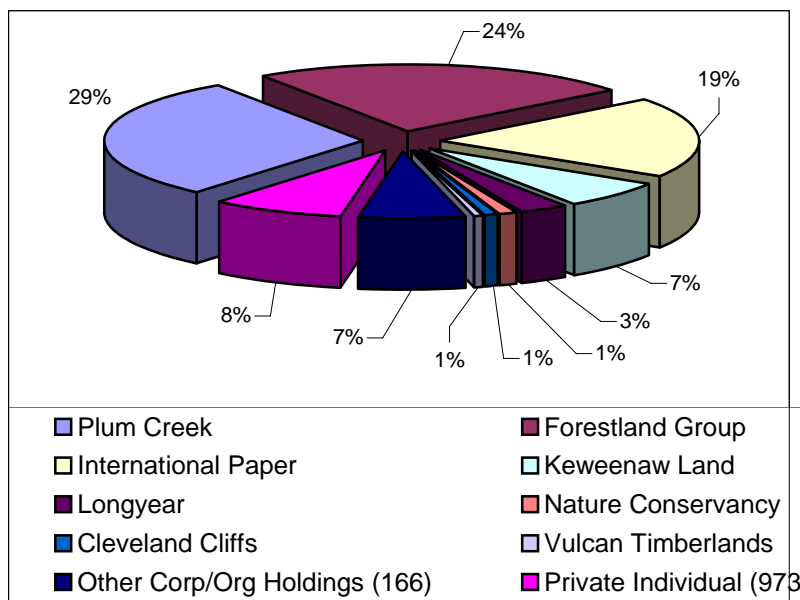


Figure 8. Distribution of major CF Land Owners.

Other state and federal programs supporting the forest products industry include:

- Community Forestry Grants (CFG)* are available through the Department of Natural Resource's Urban and Community Forestry Program and are funded by the U.S. Department of Agricultural Forest Service's State and Private Forestry Program. The purpose of the grants is to help communities understand and properly manage valuable natural resources. Grants are given for projects such as management and planning, training and education, tree planting and library resource purchases. These projects must be performed on non-federal public land.
- Forest Stewardship Program (FSP)* has the general goal to significantly increase the amount of non-industrial private forestlands (NIPF) managed and the quality of that management, enabling individual landowners to increase the benefits derived from their land, while conserving it for the future. More specifically, the practices encouraged by the program aim to maintain, enhance and sustain forest ecosystems and their species; improve fish, game and non-game wildlife and plant populations; provide additional quality outdoor recreational experiences; result in stable production of wood products; ensure soil productivity; protect water quality and quantity; protect wetlands and cultural/historical sites; and enhance the biological diversity and aesthetic qualities of our landscape.
- Qualified Forest Property (QFP)*. This program provides a tax exemption as a method to encourage private landowners to manage their land for forestry. Enrollment exempts landowners from some school operating taxes (18 mills), and purchasers of QFP-enrolled property may also seek local government approval of an exemption from the property value assessment "cap" removal that would normally occur when land is transferred. Landowners must have a minimum of 20 vacant, contiguous acres (no buildings or structures are allowed) and are limited to exempting 320 acres per taxing unit. Landowners must manage their land with an approved forest management plan or forest management plan certified by a third-party certifying organization. Participating landowners are not required to allow public access on their land.
- Forest Legacy Program (FLP)* addresses the issue that local government zoning standards are often insufficient in fully protecting privately-owned, environmentally-sufficient forest lands. As a result, useful forest lands are often converted to other development. The Forest Legacy Program

acquires conservation easements, a legally-binding agreement where property rights, including the right to develop, are transferred from one party to another. When the conservation easement is purchased using Forest Legacy Program funds, development is restricted and sustainable forestry practices required. The funding is limited to private forest landowners, who must prepare a resource management plan. The federal government may fund up to 75% of program costs. Landowners who take part in the Forest Legacy Program benefit from reduced taxes associated with limits placed on land use, in addition to the benefits that come from the sale or donation of their property rights.

- *Michigan Right to Forest Act* (2002 PA 676), outlines a set of "generally accepted forestry management practices" (GAFMPs), and compliance with these GAFMPs provides a defense for forest operations against many nuisance allegations. GAFMPs were approved in November 2006, based on recommendations from the Forest Management Advisory Committee and the Natural Resources Commission, and they apply to both public and private forest lands in Michigan. The GAFMPs outline management practices that address four general categories of potential nuisance complaints: visual changes; noise; removal of vegetation from neighboring land; and the use of chemicals normally used in forest operations.
- *Michigan Forest Finance Authority (MFFA)*. The MFFA is an independent nine-member board created within the Department of Natural Resources. The MFFA Board of Directors is responsible for implementing a system of forest management, financing forest management operations, issuing bonds or notes, and contracting for timber cutting rights. It also oversees a \$26 million fund as a part of the 21st Century Jobs Fund and "is charged with investing in projects that will create jobs and spur economic development in Michigan." Activities are limited to State Forests and are intended to "improve forest management, protect forest resources, create jobs and promote local and state economic activity."

Private Purchase Agreements. In addition to government-sponsored approaches, agreements between buyers and sellers can also play an important role in securing a more predictable future for UP timberlands. For example, a 10-year fiber supply agreement with the Verso Paper mill in Quinnesec (previously Champion International and then International Paper) was part of the purchase agreement in the IP sale. A long-term fiber supply agreement with the NewPage paper mill in Escanaba was part of the Plum Creek purchase agreement.

Other non-governmental forest certification programs of note are the Sustainable Forestry Initiative (SFI) of the American Forest & Paper Association (AF&PA), a U.S. forest product trade organization; and the Forest Stewardship Council (FSC), a consortium of international interests such as non-governmental social and environmental organizations and forest product interests. These programs, developed in the early 1990s, are similar in their overall goals of sustainable forestry practices (Meridian, 2001).

Once these programs certify a forest management practice, monitoring continues through timely audits or complaint resolution. Failure to comply with program standards may culminate in de-certification. While Michigan's CF program imposes financial penalty for program withdrawal, FSC and SFI do not, relying mainly on market pressures to maintain certification.

Conservation Easements. Easements are typically restrictions placed on a property's deed regarding such issues as property development, forest management and public access. Easements are acquired through both donation and purchase. Data regarding Conservation Easements in place on certain lands in the UP were not gathered for this study; however, their existence greatly influences land use planning efforts. Identification of those lands bound by deed restriction and the nature of such restrictions would greatly enhance interpretation of ownership data.

A good example of Conservation Easements for the UP is The Nature Conservancy's "Northern Great Lakes Forest Project," which reached agreement with The Forestland Group on 271,000 acres of UP timberland (TNC 2006) for the protection of public access, sustainable forestry practices and resource conservation of sensitive areas.

Planning and Zoning. In the UP, the companies representing the newly dominant TIMO and REIT owner-types are either FSC- or SFI-certified to follow sustainable forest practices, and the majority of these lands are CF enrolled. Conservation easements are in place on over 15% of these land holdings protecting access, habitat and sustainable forestry practice without threat of future development.

However, the majority of the focus companies in this study do identify and convert forest lands of high value to other uses. This increases the potential for parcelization of large tracts of timberland and may lead to an increased number of management principles and objectives per unit, adding uncertainty to the nature and status of forest management and condition (Drzyzga and Brown 2002).

Public access to large-tract corporate lands for activities such as hunting, fishing, trapping and hiking is a tradition in the UP, and has been provided through the CF program and the permissions granted by individual companies. Based on our data, more than 90% of lands held by the primary companies, or more than 1.8 million acres, are CF enrolled. While de-listing of CF land for alternate use has an immediate impact on public access, development on adjacent lands may inhibit access to listed parcels.

In the case of hunting (Nelson 2001), it has been shown that restrictions placed on the discharge of firearms in proximity to structures limited access. Typically, a safety zone of 450 feet is required around buildings. Using a 30 x 30 foot structure as an example, Nelson calculated nearly 16 acres of land unavailable for hunting. Further loss of public access to public land may occur by parcelization of fringe areas isolating or "land locking" landscape features.

Thus, in addition to market-based and private approaches, state and local planning and development policies provide additional strategies that can help ensure the sustainable availability and responsible use of valuable resources. As the global economy, state and UP continue to undergo dramatic transformations, communities can become more proactive and strategic in addressing the allocation of land, people and resources to create a clear vision that will invite business, keep and attract young people and foster entrepreneurialism and a high quality of life for the UP.

Cast Study: Downeast Lakes Forest Project Shows Value of Public Engagement

When 446,000 acres of Maine timberland were sold to a timber management investment organization and harvesting was intensified, community fears of development became palpable.

Potential threats to the region's tourism economy were addressed with a three-part conservation project including 500-foot riparian buffers on 50 miles of waterways, a 27,000-acre purchase and a 312,000-acre conservation easement.

To build support and rationale for the project, the groups invested in studies cataloging the natural resources on the forest lands. They also conducted outreach to teach the public and policy makers that the resources are key to an economy built largely on recreational pursuits and attendant businesses.

The Friends group also evolved into a community leader, marshalling public support for a deal it bills as "the first northern Maine forest conservation project that is community incubated, community supported, community led and designed to sustain a natural resource based, rural economy and lifestyle."

The protections were engineered by three core partners: The New England Forestry Foundation, Friends of the Downeast Lakes and the Woodie Wheaton Land Trust. The cost was \$31.5 million. The deal closed in 2005.

The Downeast example illustrates how community-based initiatives can be successful in securing and maintaining land protections that wouldn't otherwise occur. (See Appendix D for more information.)

Land use regulation occurs through a variety of local, county, state and federal statutes. According to a report prepared for the Tri-County Regional Planning Commission (TCRPC 2002), the most common types of land use and development regulation in Michigan involve:

- Land use planning and development laws (e.g., local and county planning and zoning enabling laws);
- Natural resources and environmental protection laws (e.g., wetland and floodplain laws);
- Infrastructure programs (e.g., water supply and sewer system laws); and
- Housing and economic development tools (e.g., brownfield redevelopment law).

Each of these packages plays a significant role in shaping the future land uses, municipal growth and overall destiny and character of communities. The State of Michigan has articulated the role of state and local governments in each of these areas through state laws and guidance documents, and each area of emphasis provides specific tools and strategies for influencing land use uses in the future. The area of particular interest to the future integrity of the forest land base in Michigan's Upper Peninsula is planning and zoning capacity.

Local Capacity for Planning and Zoning. A general assessment of the planning and zoning capacity of local and state government provides a look at the UP's potential future because "the comprehensive plan provides 'a tangible representation of what a community wants to be in the future.'" (Kelly and Becker 2000). While infrastructure decisions, economic development tools and housing strategies play critical roles in shaping the future of the UP, they are largely outside the scope of this project. Additionally, the implications of different land use scenarios on the infrastructure needs, associated costs and affordable housing allocations are well documented (www.landpolicy.msu.edu).

Currently in Michigan, approximately 1,857 local units of government (272 cities, 261 villages, 1,241 townships and 83 counties) have direct land use planning and zoning authority, though a myriad of local issues, powers and strategies make the land use arena a complicated one to grasp. In addition, each level of government (villages and cities, townships, counties) is governed under slightly different local structure: planning commission, zoning boards of appeal, etc.

The Upper Peninsula is comprised of 206 different local governments. According to MSU's 2003/2004 Institute for Public Policy and Social Research (IPPSR) survey, 117 of the 206 UP local governments (56.7%) have their own zoning ordinances, including villages/cities, townships and counties. An additional 28 governments without their own zoning ordinance are subject to county zoning (for a total of 70%). Overall, a lower percentage of local governments have plans and ordinances in the UP compared to other regions of the state. See Figure 9.

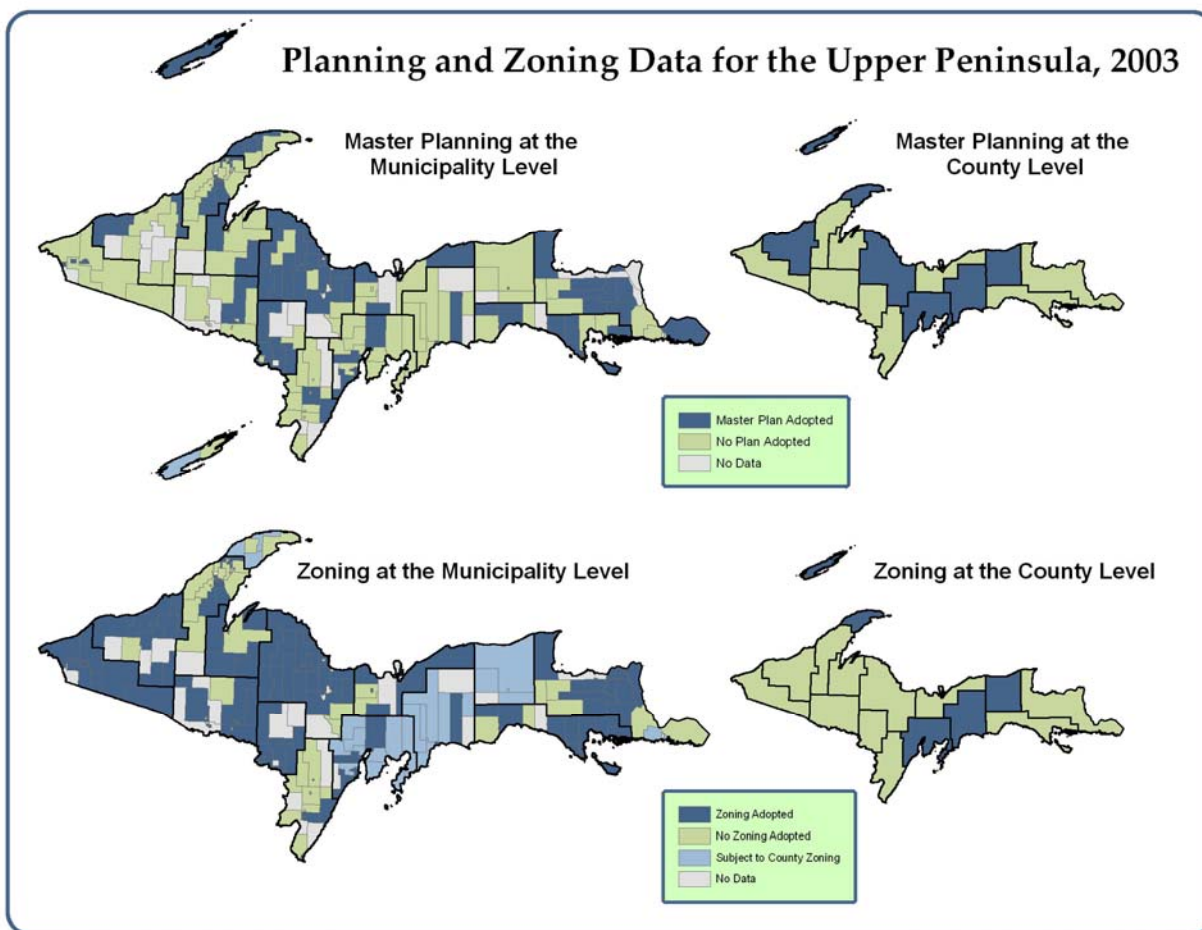


Fig. 9. Planning and Zoning Data for the Upper Peninsula, 2003. Source: McGrain, Brian. "To Plan or Not to Plan: Current Activity within Michigan's Local Governments." Institute for Public Policy and Social Research. Policy Brief, Volume 8, January 2004.

Most roles within this structure are undertaken by volunteers elected or appointed to offices. Rarely is a professional background in planning or zoning a prerequisite for appointment. Many of these volunteers are supported by paid professional staff, but this is rarely the case in smaller rural areas such as the Upper Peninsula.

As a "home-rule" state, development and implementation of land use regulations are housed in the smallest unit of government with applicable authority, meaning that land use planning and zoning is close to the people and capable of great innovation and responsiveness, but also limited by lack of resources and an inability to effectively coordinate decision-making across narrowly defined municipal boundaries.

The large number of local governments in the state (1,857) and in the Upper Peninsula (206) makes collecting and analyzing information about planning and zoning capacity very difficult. Additionally, procedures and communication systems within local government are not consistent, leading to further complications in data collection. According to research undertaken by Michigan State University's IPPSR, "Quite often communities were not aware of who was in charge of planning and zoning, or even whether or not the community had zoning in place. This led to some miscommunications. For instance, in a number of cases, several surveys were returned by different people from the same community, but with different information provided" (Suvedi and Taylor 2002).

Table 6. Contents of Planning and Zoning Documents in the Upper Peninsula.

IPPSR Question	UP Municipalities	Total Michigan Municipalities
Does your zoning ordinance include Shoreline Protection?	31 (15.0%)	192 (14.1%)
Does your zoning ordinance include Access Regulations?	19 (9.2%)	374 (27.5%)
Does your zoning ordinance include Environmental Area Regs.?	8 (3.9%)	136 (10.0%)
Does your zoning ordinance include Cluster Development regulations (at least 50% open space)?	21 (10.2%)	493 (36.2%)
Does your zoning ordinance include Wetland Regulations?	20 (9.7%)	255 (18.7%)
Does your zoning ordinance include Woodlands Regulations?	19 (9.2%)	125 (9.2%)
Does your zoning ordinance include Lot Splits Regulations?	52 (25.2%)	786 (57.8%)
Does your zoning ordinance include Private Road Regulations?	20 (9.7%)	597 (43.9%)
Does your zoning ordinance include Purchase of Development Rights?	1 (0.04%)	47 (3.5%)
Does your zoning ordinance include Transfer of Development Rights?	2 (0.1%)	38 (2.8%)
Does your community charge applicants for the full cost of review of development proposals?	27 (13.1%)	635 (51.3%)
Does your zoning ordinance include Traditional Neighborhood Development/Form-Based Zoning?	19 (9.2%)	295 (21.7%)
Does your zoning ordinance include Farm Land Protection Regulations?	18 (8.7%)	221 (16.2%)
Does your zoning ordinance include Growth Management Ordinances?	2 (0.1%)	80 (5.9%)
<i>Source: McGrain, Brian. "To Plan or Not to Plan: Current Activity within Michigan's Local Governments." Institute for Public Policy and Social Research. Policy Brief, Volume 8, January 2004.</i>		

It is clear that level of experience and knowledge with regard to planning duties and responsibilities varies widely across Michigan, but is often lower in rural areas such as the UP. Researchers for this project encountered substantial difficulty in locating the appropriate representative of each local government entity. Some were not aware if they had planning or zoning documents at all, and the level of relevant knowledge varied widely. Very few of the representatives of each municipality knew if the ordinances were available at a local library or where they could be reviewed by the public.

Content of local UP plans and ordinances. The IPPSR study also reveals a clear difference in the complexity and specificity of planning and zoning documents in the UP compared to those in the rest of the state. This is true of nearly every category of zoning ordinance addressed by the IPPSR study, as seen below. For example, specific environmental and resource production ordinances that could be very prominent in the UP, such as woodland production, wetland protection and shoreline development ordinances, show up far less frequently on a percentage basis in the UP, suggesting that UP municipalities use these ordinances much less often than their downstate counterparts, despite their clear relevance to the region. See Table 6.

Of the relatively small number of municipalities using zoning ordinances in the UP, an even smaller number utilized growth management or resource protection strategies.

The examples in Appendix C highlight the different strategies UP municipalities have taken. Samples are taken from a variety of ordinances throughout the UP and contain provisions that may appear redundant or contradictory at first glance; they offer a broad overview of the types of zoning ordinances in use. The full summary of ordinances with their associated township affiliation is available in Appendix C.

Part 4: Recommendations for a Sustainable Timber-based Economy

The following set of four strategies with recommendations incorporate regulatory and market-based tools to promote more stable, sustainable ownership and management of commercial forest lands, while fostering local economic, recreational and conservation opportunities.

Four primary strategies for the UP are proposed based on those previously developed by the Northern Forest Lands Council for the Northeast forested region of the United States. These strategies are: *Foster Stewardship of Private Land, Protect Exceptional Resources, Strengthen Economies of Rural Communities and Promote Informed Decisions*. Various approaches, tactics and tools are recommended within each strategy, including, for example, sustainable community forestry initiatives, tax incentives, local zoning models, land acquisition funding, working forest conservation easements and public education about natural resources.

The recommendations are drawn from studies of land use, forest management trends and the role of the forest products industry in the economy of the Upper Peninsula (UP) of Michigan, similar studies for the Northern Forest region of New England and New York, a current assessment of regulatory capacity in the UP, surveys of state-based regulatory and incentive programs, and a case study of recent large-scale forest land transfer in Maine. Relevant deliberations and recommendations by the Michigan Land Use Leadership Council and the Michigan Forest Products Council have also been examined. The recommendations under each strategy are prioritized reflecting a consensus from multiple sources on important steps that need to be taken to assure a viable and sustainable future for the forests, people and forest-based businesses of the UP.

These strategies and draft recommendations will be presented for refinement at a workshop to be held in the UP with local units of government, forest product companies, forest conservationists and other stakeholder groups. Final recommendations will consider feedback from the workshop on feasibility, relevance and potential benefits or drawbacks of the various proposals.

Strategy: Foster Stewardship of Private Land. (Recommendations 1 – 4)

1. Maintain and fully fund the administration of the Commercial Forest (CF) and Qualified Forest Property (QFP) programs, including current county payment levels.

The CF program provides a property tax reduction to private landowners as an incentive to retain and manage forestland for long-term timber production. Landowners who enroll a minimum of 40 acres in this program pay property tax based on their current use as opposed to potential development value. Enrolled owners and the State of Michigan pay a reduced tax of \$1.20 per acre annually to each county where land is listed in the program. Landowners in this program agree to develop, maintain and manage the land as commercial forest through planting, natural reproduction or other silvicultural practices. Lands listed in this program are required to be open to the public for hunting, trapping and fishing. An additional 15 cents per acre tax reduction is available for properties with a “working forest” conservation easement.

The complementary QFP program is oriented to non-industrial forest owners and provides property tax exemption for similar purposes as the CF program. Landowners can enroll land that meets the requirements of being between 20 acres (minimum) and 320 contiguous acres, with at least 80% productive forests, no structures and updated forest management plans. Qualifying enrolled forestland is then exempt from certain school operating taxes (18 mills). Purchasers of QFP-enrolled property may apply to their local government to prevent the property valuation from being “uncapped,” which would normally occur at the time of transfer of property. Unlike the CF program, QFP does not have public access requirements. Both the CF and QFP programs are administered by the Michigan Department of Natural Resources (MDNR) Forest, Mineral & Fire Management Division.

2. Staff and fund state conservation easement programs to maintain working forest land.

Michigan operates, for example, the Forest Legacy Program (FLP) in partnership with the U.S. Forest Service in order to protect privately owned and environmentally significant forest lands from being converted to non-forest uses. FLP is a voluntary program that helps pay for the acquisition of development rights through conservation easements. These legally binding agreements help relieve financial pressure to develop forest land, while maintaining the property in private ownership. To qualify, landowners are required to prepare a multiple resource management plan as part of the conservation easement acquisition. The federal government may fund up to 75% of program costs, with at least 25% coming from private, state or local sources.

3. Maintain landowner education, outreach and technical assistance programs.

For example, the Forest Stewardship Outreach and Education Grant Program is designed to encourage private forest land owners to actively manage their forestlands and to develop long-term management plans that will enhance the understanding of forest ecosystems. The program also provides outreach and education to all citizens about stewardship of our natural resources. Grant projects can include management plans for school and municipal forests, outreach and education projects, demonstration areas and ecosystem projects. All proposals need to involve NIPFs.

4. Develop a Community Forest awareness, acquisition and management program.

Municipal, town and community forests can provide local opportunities for forest education and exposure to sustainable forest management for private landowners and other local stakeholders, often in cooperation with local K-12 and vocational schools. Exposure to working, well-managed local forests can help stimulate interest in forestry professions for youth. Community forests can provide opportunities for forestry events that demonstrate model forestry techniques and technology as well as showcase value-adding processes. They can also help provide and link outdoor recreational opportunities.

Strategy: Protect Exceptional Resources. (Recommendations 5 – 11)

5. Support private forest conservation acquisition and easement programs.

The Trust for Public Land's Northwoods Land Protection Fund, for example, uses funds from private donors to help conserve forestland. After acquiring land threatened by development, land trusts will typically place a conservation easement on the land, preventing future conversion or development. While the highest conservation value areas may be put into a forest reserve status, forest conservation easements frequently allow for, or even require sustainable forest management plans for, the majority of acquired properties. In most cases, land trusts will sell the land back to a public land management agency at below market value, as permanent additions to public forest holdings.

6. Encourage and support community "visioning" and master planning processes.

Communities in the UP have substantially fewer master planning processes and plans than the rest of the state. As the rate of development increases, this creates the possibility of haphazard development that could affect critical forest and water resources and diminish recreational opportunities. Master planning and visioning processes allow local communities to decide how they would like to see their area develop, while reducing conflict that otherwise could result from more ad-hoc responses to ownership changes.

7. Fund training and continuous education opportunities for municipal planning and zoning administrators.

Well-trained and experienced planners and administrators can conduct business more efficiently and effectively. Municipal staff in the UP are very interested in training opportunities, but have fewer options on average than elsewhere in the state. Options for group orientation and training, on-line tutorials and use of "circuit rider" trainers or mentors should be studied. University forestry extension services can be very effective delivery mechanisms. Additionally, the Citizen Planner Program through Michigan State

University provides training modules in classroom and online versions that can provide local planning officials with tools, strategies and skills to support better planning in the Upper Peninsula.

8. Fully fund and staff MDNR for all land management and related activities.

The duties and expectations of state land management departments have increased substantially in recent decades. In particular, activities associated with administration of tax adjustment programs, cost-share and technical assistance to private landowners, easement appraisals and administration, and state forest ecological management and certification require professional staff, often beyond the traditional purview of natural resource managers. Appropriate staff levels and funding can ensure that legislative and executive mandates passed on to the department are implemented effectively.

9. Increase support and education for local land conservation finance ballot measures.

Local land conservation financing mechanisms can include “pay as you go” initiatives such as property tax levies to pay for recreational corridors or community forests, and capital improvement general obligation bonds to protect and restore natural infrastructure. These measures can help enact community desires for forest conservation as identified in planning processes. Such ballots require local voter approval so their use measures citizen sentiment regarding conserved lands as assets to local communities.

10. Maintain the Michigan Natural Resources Trust Fund (MNRTF) for intended purposes and seek additional opportunities specifically in the UP.

The MNRTF was established in 1976 to provide a source of funding for public acquisition of lands for resource protection and public outdoor recreation. Funding is provided from royalties on the sale and lease of state-owned mineral rights. During its 30-year history, the fund has supported state and local land acquisition and natural resource development projects in every county in Michigan. In 2006, 61 recreation, land acquisition and working forest easement projects totaling \$36,076,075 were funded. A total of 162 applications were submitted with total demand for project funding exceeded \$63 million. As industrial land owners review their land holding portfolios in the UP, many opportunities for long-term forest conservation, working forest maintenance, and growing recreational demands can be served by application to the MNRTF.

11. Provide technical assistance to communities to update existing planning and zoning documents and make available online model forest land zoning ordinances and templates.

Many existing local planning and zoning documents and codes are out of date. As interest in developing UP forest land continues and community concerns are expressed, it would be timely to update these local means to manage forest conversion rates and protect valuable natural resources. State technical assistance to communities would assure more consistent and timely updating of policies and procedures. UP communities have significantly lower use of zoning ordinances than statewide. As rates of forest land sales and conversion increase, the availability of model ordinances and zoning templates can help to efficiently develop zoning codes.

Strategy: Strengthen Economies of Rural Communities. (Recommendations 12 – 17)

12. Develop forest product marketing and regional branding support programs in cooperation with USDA Rural Development offices, the U.S. Small Business Administration and state economic development programs.

Forest product differentiation is important in a rapidly globalizing marketplace for forest products. Offshore production enjoys cost advantages (i.e. in labor, energy and health care). This has imposed severe price competition on domestic producers, especially those processing commodities. Differentiated marketing and regional branding strategies for domestic wood products can be based upon non-price attributes,

such as product quality, support for local economies, certified forest management practices, customization potential and speed of delivery. Group and cooperative marketing opportunities are also useful for smaller-scale producers. Forest product businesses are generally under-represented in the farm-oriented programs of USDA Rural Development and the more urban orientation of many SBA and state economic development programs. With modest targeted outreach and technical assistance, new and revitalized value-adding forest-based businesses can emerge.

13. Promote public policy to support forest-based recreation.

Outdoor recreation is the most rapidly increasing public demand on State and National Forests. Access to private lands for hunting and fishing is also a public concern as large forest ownerships change hands. With recreation a major economic driver in the UP, policies that help maintain and sustainably manage forest-based recreation are critical.

14. While maintaining third-party certification, MDNR should calculate and work to implement sustainable timber harvest levels on state forests.

The forest industry is facing a modest degree of fragmentation of the resource base and increasingly the arrival of new forest owners who may not be familiar with, or inclined to pursue, active forest management. A more predictable stream of certified timber sales from state forests could assist value-adding industries in scheduling investments in production capacity and labor. Certification programs also encourage calculations of sustained timber yield levels in required management planning documents.

15. Target access to state grant and loan funds for infrastructure improvements to those local units with comprehensive growth management plans.

State grants and loans for infrastructure improvement can be used more effectively by prioritizing projects that are embedded in long-range community planning processes. Infrastructure development and improvement should serve the needs of existing and desired patterns of development, rather than stimulating wasteful and costly sprawl-type development that imposes long-term fiscal burdens on local communities. This can be encouraged by requiring municipal or county applicants to submit planning documents that account for the impact and long-term consequences of the proposed investments.

16. Maintain and expand third-party certification of public forest land management.

Case Study: Michigan Forest Tools Build Northern Great Lakes Forest Project

The Northern Great Lakes Forest Project establishes a working forest conservation easement on 248,000 acres of Upper Peninsula forest land owned by The Forestland Group, LLC, which purchased the land in 2002. The easement agreement was brokered by The Nature Conservancy, with help from the State of Michigan and financial support from numerous private foundations, other individual contributors and public programs.

The land was already enrolled in Michigan's Commercial Forest (CF) program, a voluntary initiative for privately owned forest lands that requires management for timber harvests and public access for hunting and fishing in exchange for greatly reduced property taxes.

The easement augments the CF goals and public benefits by keeping the land - and its many lakes, streams and wetlands - permanently open to the public for expanded recreational opportunities, including hiking, cross-country skiing and snowmobiling, in addition to hunting and fishing. Forestland continues to own and manage the property to maintain a stable and sustainable wood harvest, retaining the right to sell this property to future owners that would have to abide by the easement agreement now in place.

The Northern Great Lakes Forest Project is a tremendous example of how the marshalling of organizations and incentives designed to promote sustainable timber management and land protection can work together. It also uses multiple tools already available in Michigan—easements, incentives and the state's Natural Resources Trust Fund, which pledged \$16 million—to execute the deal.

The project cost \$58 million, which includes the outright purchase of an additional 23,318 acres by the Conservancy.

Stable supplies of certified wood from public lands can provide economic opportunities for value-adding and marketing through product differentiation. The State of Michigan has obtained third-party certification of its state forest management under two systems, the Forest Stewardship Council and the Sustainable Forestry Initiative. Forest certification verifies that forest management activities are practiced in consideration of wildlife, water quality, long-term productivity and, to varying degrees, local communities. The state should include other managed forest lands, such as State Game areas and State Parks, and consider means to involve other managed public forest lands such as community forests.

17. Maintain the capitalization, and expand the activities of the Michigan Forest Finance Authority (MFFA).

The MFFA is an independent finance authority within MDNR created to finance forest management investments on productive sites in state forests by issuing direct revenue bonds to be repaid by future revenues from timber sales. Board members include loggers, conservationists and the directors of three state departments. Funded activities are designed to improve forest management, protect forest resources, create jobs and promote local and state economic conditions. Michigan appropriated \$26 million to launch the MFFA. Initial projects include an inventory and management effort for the many mature red pine stands in state forests, some dating back to the work of the Civilian Conservation Corps in the 1930s, resulting in local wood harvests for local uses.

Strategy: Promote Informed Decisions. (Recommendations 18 – 22)

18. Continue to track, analyze and report forest land use, economic and social trends periodically.

Rates of change in forest ownership are accelerating, variability in environmental conditions is increasing, and outbreaks of forest pests and pathogens are more frequent. Ten year (decennial) forest surveys and reports by the USDA Forest Service are important tools to assess rates of change, but more frequent sampling of areas most affected by these changes, conducted by state natural resource departments, should be encouraged.

19. Promote natural resource education for the public in public education curricula and through agency and non-profit educational outreach and demonstration activities.

Forest land ownership is turning over more frequently, and large holdings are breaking up. A new generation of forest owners looms on the horizon without much experience in, or exposure to, forest ecology or management. Youth interest in outdoor recreation is also in decline with the massive expansion of electronic media and the internet. A restoration of natural resources and ecological education in public curricula, expanded application of outdoor experiential and service learning opportunities, placement of forest interpretive exhibits and staff in public forests, and reinforcement of forest agency and non-profit educational outreach are vital in order to slow or reverse these trends.

20. Support cooperative efforts among state universities, state agencies and conservation groups for eco-regional planning on state lands, maintain the annual state-wide assessments and reports from the Michigan Natural Features Inventory and implement the "Biodiversity Conservation Planning Proposal" of the MDNR Biodiversity Conservation Committee (BCC).

The development and use of criteria and indicators for forest ecosystem health provides means to track ecosystem status and changes over time and in reaction to management practices and climate change. Eco-regional planning is best pursued through multi-party cooperation, due to the large amount of data in a wide variety of scientific specialties. Cooperative efforts on state lands also leverage limited agency resources to conduct necessary field work, database development and report generation. Forest biodiversity and adaptation of forest ecosystems and species to global warming can be improved by identifying and using appropriate management techniques for biologically important and/or scarce forest types and habitats. Focus area identification and mapping can greatly aid land managers in site-specific management approaches, as well as help the public celebrate and protect their natural heritage.

21. Support the operation and activities of the Michigan Invasive Plant Council and other efforts to manage forest pests and pathogens.

With the Emerald Ash Borer, Asian Longhorned Beetle, beech bark disease, oak wilt and other forest health threats increasingly afflicting UP forests, more frequent and comprehensive surveys of forest pest and invasive species are necessary. The State, Invasive Plant Council and forest landowners and managers should cooperate to develop and apply best practices for quarantine and control activities.

22. Improve local access to GIS technology and data, and training in its use, possibly through a regional consortium of universities, MDNR and other state agencies.

Adequate funding should be provided to MDNR to implement a state-of-the-art GIS-based forest ecosystem inventory system, in cooperation with existing service providers, forest conservation groups and universities with existing GIS capacity. Forest industry, land use planners, conservation interests and other state agencies including transportation departments and utility regulators need a centralized repository of quality, up-to-date GIS data. A longer-term funding commitment to data collection, including remote sensing and data ground-truthing is also necessary to expand and keep current existing data sets.

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BLS	Bureau of Labor Statistics
CCI	Cleveland Cliffs Iron Co.
CF	Commercial Forest program
FSC	Forest Stewardship Council
GMO	GMO Renewable Resources Inc.
IP	International Paper Co.
REIT	Real Estate Investment Trust
SFI	Sustainable Forestry Initiative
TIMO	Timber Investment Management Organization
TNC	The Nature Conservancy
UP	Upper Peninsula
VITPC	Vertically Integrated Timber Products Company

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