

PUBLIC RECREATION ON PRIVATE FORESTS: NO MORE GUARANTEES

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Abstract: Studies across the U.S. have found that non-traditional ownership of Non-Industrial Private Forest-land (NIPF) ownership, centered on residential and recreational rather than timber production objectives, is gaining prevalence. Recent NIPF conversion in the Northern Forest of Northern New England and New York came under scrutiny by the Northern Forest Lands Council. A study conducted by the University of Vermont to determine ownership factors associated with conversion of Vermont NIPF found that generational turnover in ownership drives much of the change in ownership objectives to residential and recreational use. The new generation of owners, undertaking conversion at greater rates, were dominated by middle-aged, affluent professionals having these coexistent objectives. Recreation-centered owners converted NIPF parcels at rates higher than the average for all new owners. Owners purchasing with nature preservation objectives, and engaging in wildlife management activity, exhibited a pronounced increase in conversion activity. The study concluded that this generational turnover of Vermont NIPF to owners with recreational/residential objectives is contributing to the parcelization and privatization of this land, affecting the current and future availability of public, open recreation space in Vermont.

Introduction

Recently attention has turned to the conversion of Non-Industrial Private Forest-land (NIPF) to developed uses across the Northern Forest of New York, Vermont, New Hampshire and Maine. Large-tract purchases by speculators in the Northern Forest in the late 1980s spurred the formation of the Northern Forest Lands Council (NFLC), which identified NIPF conversion among issues to be studied as potential threats to traditional uses of the Northern Forest (Harper et al 1990).

The NFLC-commissioned Northern Forest Lands Study found that decreased travel time from major urban centers, increased number and quality of roads, and the demand for scenic property among other causes have led to identification of NIPF lands by major commodities markets as undervalued and economically attractive for purchase and development (Harper et al. 1990). Similarly, recent studies across the Northeast found the majority of NIPF owners in Vermont and elsewhere do not hold land for timber management. The prevalence of non-timber ownership objectives is so widely recognized in NIPF ownership studies that it has been termed "the NIPF problem" (e.g., Bliss et al. 1994, Bourke and Luloff 1994,

Egan and Jones 1993). A recent study of Vermont NIPF owners found residence (43%) and aesthetic enjoyment (39%) the leading reasons for ownership (Widmann and Birch 1988). That study also concluded that timber production ranked low (1%) and was concentrated on parcels of 500 or more acres.

The new NIPF owner with residential/recreational objectives often has little knowledge of the benefits of timber management and little desire to manage for timber (Rosen and Kaiser 1988). These owners, typically from urban areas, often find they have no practical need for the acreage of forestland they purchase (Hubbard 1989). The more frequent newer uses of NIPF, such as residential and nontimber investment, do not require parcels of the size necessary for economic timber production. Even after the land has been subdivided, the new owner often finds more land left than he or she knows what to do with (Healy 1981).

NIPF parcels with amenity values such as water bodies and views are coveted by owners with non-timber objectives; accordingly, recreational activities have begun to attract increased numbers of vacationers and retirees from large metropolitan areas to the Northern Forest (Harper et al. 1990). They will be more unlikely to harvest forest products and more likely to develop. Recent indications point to recreation demand's positive effect on conversion. Participants at the 1989 "Conserving the North Woods" conference noted increased claims being made on forestland by recreationists and second-home buyers (Bristow 1989, Healy 1989). They said that landowners catering to the recreational development market have found it profitable to divide larger parcels into 1-40 acre tracts. These tracts sell for higher prices per acre and are most in demand by those planning to erect a second home. The Irland Group study in Harper et al. 1990 states that recreationally valuable lands in the northern reaches of New England and New York are being subdivided--privatized--so that individuals may secure their share of a diminishing amenity resource.

In connection with these findings, a study of Vermont NIPF conversion was undertaken by the UVM School of Natural Resources to determine the extent of this conversion and identify the ownership factors associated with it. The objectives of this study were:

- To identify ownership factors associated with the conversion of Vermont's Non-Industrial Private Forest Land (NIPF) to other land uses.
- To characterize NIPF ownerships that are prone to land use change.

Methods

That study's population, all 100+ acre land parcels transferred between January 1987 and June 1993, was obtained from the VT Department of Taxes transfer tax form. A total of 772 survey returns were gathered from 3072 valid addresses for a 25.5% proportion of the state's NIPF transfers during that period. Sellers and buyers

were surveyed to obtain generational data, and to elicit empirical data on differences thought to exist between recent ownerships and older ownerships. Locational, demographic, natural feature, legal, land use, and parcel sale information were collected as independent variables to establish profiles of ownerships prone to conversion. The dependent variable, conversion, was defined as that point in time when the NIPF owner engages in a land development activity on the NIPF property not primarily associated with woodland management, or subdivides, or sells for subdivision or development, all or part of the NIPF property.

Several types of conversion were distinguished for this study; two types, *woodland conversion* and *sale conversion*, are discussed in this paper. *Woodland Conversion* occurred when clear indications of development took place during ownership tenure on a parcel primarily in woodland use before purchase. Four study criteria indicate such development had taken place:

1. the parcel had developed acreage
2. the parcel had one or more structures added
3. the parcel had one or more property features added (utilities, water system, access road or driveway)
4. the parcel was used primarily as permanent residence, second home, vacation home, commercial business, or industrial enterprise.

Sale Conversion was measured in the study as a parcel undergoing a transfer involving initial or continued conversion through development or subdivision, denoted by these events:

1. The parcel was sold to a developer, a real estate agent/broker, or a buyer purchasing for development;
2. The parcel was sold to develop land for profit.
3. The parcel was subdivided into parcels of less than 100 acres, one or more of which was sold.
4. The parcel was sold to a buyer purchasing for a residential single home, residential home with multiple units, vacation home, commercial use or industrial use.

The data were analyzed in several stages of univariate, bivariate and multivariate analysis. Frequency analysis was used to find the proportion of respondents exhibiting a single ownership characteristic or group of characteristics; the Z-test of binomial proportions was used to test the hypothesis that any two proportions found in the frequency analysis were statistically different. Chi-square analysis was used to identify ownership factors corresponding with conversion activity at statistically significant levels. Chi square analysis of all nominal independent variables were run against all conversion types, including the *woodland conversion* and *sale conversion* types discussed here.

Results

The study's central finding was that roughly half--47.9% was the exact finding--of Vermont NIPF was being converted during the study period either as a function of the sale or during the resulting ownership.

Generational Turnover

Most conversion appears to be driven by a generational turnover effected in the transfer from sellers to buyers, resulting in many newer ownerships by affluent, middle-aged white-collar professionals (Table 1). Purchasing often from retiring sellers with lower incomes and more often with land-based occupations, new owners exhibited significant increases in income, education, managerial/professional occupations, and out-of-state residency. They also were dominated by buyers in baby-boomer to middle-age.

Table 1. Demographic profile of buyers and sellers of 100+ Vermont NIPF, 1987-1993

	NIPF Sellers 1987-1993	NIPF Buyers 1987-1993
Age 40-59	35.6%	67.8%
graduate education	33.3%	42.7%
Income > 50K	36.4%	53.6%
managerial/professional occupation	22.5%	44%
Vermont native	43%	31%
Recreation/aesthetic	27.2%	55.7%
Ownership objectives		

Note: Profile of the new user is a middle aged, educated, affluent, white collar professional with recreation/aesthetic ownership objectives.

Note: Total percentages add to over 100% because some respondents, contrary to instructions, listed several objectives without indicating primary objective

These new ownership's match the profile of urban, mobile, affluent professional noted in previous studies as gaining predominance in NIPF ownership across the country.

A Recreation-minded New Owner Generation

As noted in the set of demographics shown in Table 1, recreation-related ownership objectives were prevalent among NIPF buyers during the study period. Over half of all purchasers between 1987 and 1993, 55.7%, listed a recreation-related motive as their primary purchase objective. Nature preservation and recreational activity were reported by buyers at a frequency between 2 1/2 to 3 times that of the generation that sold to them. These figures, representing sharp increases from seller to buyer generation, compare to decreases to 19.7% in timber production and to 16.8% in farm/food production objectives. Additionally, a more than doubling has occurred in ownerships with hunting or fishing camp objectives. Table 2 illustrates this shift in purchase objectives the previous generation to current generation of Vermont NIPF owners.

A Development-minded New Owner Generation

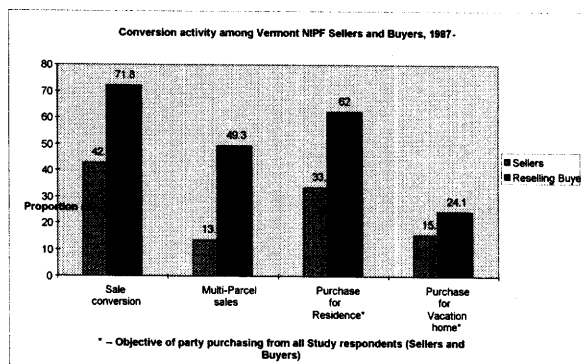
Concurrent with the sharp increase in recreation-centered NIPF ownership were sharp increases in conversion

activity among the buyer generation, and of conversion-related activity, measured as purchase for primary or vacation residence. *Woodland Conversion* activities during ownership tenure (adding structures, utilities, roads and/or other features to the property) increased by over half, from 13.9% among sellers to 21.4% among buyers; this increase produced a chi square significance level under 1%. The increase in conversion activity related to the sale of NIPF property approached or exceeded a doubling in several areas, as shown in Figure 1.

Table 2. Primary purchase objective disparities between buyers and sellers.

Purchase objective	Buyers (%)	Sellers (%)	Δ Z-score (.05 sig. ≥ 1.645)
nature preservation	18.8	6.5	4.9041
recreational activity	19.2	8.0	4.3461
vacation home residence	17.7	12.7	1.8801
hunting/fishing camp	11.9	5.0	3.3096
farm/food production	16.8	22.9	2.1254
timber production	19.7	22.3	.8789

Figure 1. Sale-related conversion among Vermont NIPF buyers and sellers, 1987-1993.



The first column in Figure 1 shows the overall proportions of sellers and buyers engaging in any type of *Sale Conversion*; the remaining columns show three of the several measures used which contribute to the overall figure. Each of these increases produced chi square significance levels of under 1%.

The sale of an NIPF property for vacation home use is shown in Figure 1 to be an prominent manifestation of these sale conversions. Having already experienced a significant increase from the seller to the buyer generation (Table 1), activity in this area continues its significant rise. Figure 1 shows the sale for vacation home among both seller and buyer study generations. Reselling buyers (buyers who resold within the seven-year study period)

sold to a "third" generation exhibiting a still greater likelihood (24.1%, vs. the 12.7% and 17.7% of study buyers and sellers) to purchase for vacation home.

Decreasing parcel acreage and ownership tenure accompanied this conversion activity in a cycle in which accelerating parcelization appears to accompany accelerating turnover. Sellers reported parcelization in only 15.3% of sales. In contrast, fifty-two of the seventy-nine reselling buyers, or 66%, reported parcelization. This is more than a four-fold rate increase. The resulting parcels, moreover, were less than half the size of parcels in multi-parcel sales by the seller generation, as shown in Table 3.

Table 3. Mean acreage of parcels in multi-parcel sales.

Sold parcel(s)	Sellers' mean acreage	Reselling Buyers' mean acreage
2nd sold parcel	70.5	22.8
3rd sold parcel	32.4	13.8

Additionally, reselling buyers sold all or part of their parcel for residential development in 68 sales--almost half the 142 seller parcels sold for that purpose. Seller residential sales occurred on ownerships averaging approximately 23 years, while reselling buyers sold after a 4.9 year average tenure. At these rates, reselling buyers within ten years will sell for residential use as many parcels as did the generation that sold to them. This is a generational doubling in turnover rate if present rates are maintained.

The results presented in this section apply to the respondent population as a whole. Among new ownerships whose owners who indicated directly or indirectly that recreation activity was primary to their purchase, these indications of conversion activity showed still greater increases.

Conversion on Recreation-Centered Ownerships

The large overlap between the recreation-centered ownerships and converting ownerships suggested in the above section was more directly seen in several NIPF buyer statistics. One data indicator of this was the increased conversion rates near recreation activities. Conversion measured as addition of structures on the parcel during tenure (*woodland conversion* in the study) rose significantly on NIPF parcels within 20 minutes of some recreation activities. Table 4 shows these increases.

Table 4 Buyer *Woodland Conversion* rates in proximity to recreation activities.

Activity	< 20 min. to rec activity	> 20 min. to rec activity	Chi sq sig. level
X-C skiing	26.0%	16.9%	.018
Golf course	24.5%	15.6%	.022
Downhill skiing	24.1%	17.6%	.091

Another more direct indicator of the prevalence of conversion among recreation-oriented ownerships, and perhaps more telling as to the type of owner and activity on such ownerships, was the increased conversion activity among owners who saw their ownerships as opportunities to links to nature. A sizable 55.4% of all parcels, including parcels already in developed use, sold for development-related purposes. However two-thirds --66.67% -- who had purchased with nature preservation as primary objective sold some or all their property for development purposes.

A similar finding resulted among owners seeking connection with wildlife through NIPF ownership. Conversion among owners practicing any of several wildlife activities increased from 14.4% to 34.2%, a factor of about 2.4, with a chi-square significance level of 0%. Each category of wildlife management activity producing the overall result was practiced by owners exhibiting similar increase in conversion, as shown in Table 5.

Table 5. *Woodland Conversion* rates when wildlife management activities practiced.

Wildlife management activity	not practiced (%)	practiced (%)	chi square significance level
Wildlife habitat creation	17.7	35.1	.00026
Wildlife feeding stations	20.0	42.9	.0042
Wetland protection, restoration, or creation	20.1	35.1	.03315
Pond construction	19.5	39.5	.00226
Fish stocking	20.3	35.5	.04715
Any wildlife management activity	14.4	34.2	.0000

Summary

A generational turnover was found to be predominant in the transfer of Vermont NIPF; this generation manifested as transfer from the retiring to the baby-boomer/middle-aged; from less affluence to greater affluence; from land-based occupation to managerial/professional occupation; finally in ownership objective. The new generation of owners purchased for recreation-related objectives in over half of all purchases. Though the new generation's conversion activity as measured in this study increased significantly among all buyers, the recreation-minded buyers exhibited still greater increases in development and fragmentation.

Several particular ties between conversion and recreation/aesthetic ownership factors accompanied the general conversion increase among owners with recreation purchase objectives. Increased development and parcelization occurred on parcels within 20 minutes of commercial recreation activities. NIPF Buyers with nature preservation objectives showed added increases in sale for development and subdivision; similarly, conversion during ownership rate among buyers practicing wildlife management activities was well over twice that of those who did not.

Conclusions

Among the findings arising from this study of Vermont NIPF conversion was the finding that new owners have increased desire for recreation-related NIPF use, as well as incomes allowing purchase of 100 ac+ NIPF land for recreation. These new owners often desire a "back-to-nature" ownership of Vermont NIPF, involving both interaction with nature, recreation and residence on their "piece of Vermont." Due to the smaller parcel size and shorter tenure requirements for residential use as contrasted to traditional timber and farm use, these owners are also prone to subdivision of parcels and shorter tenure. They may also be unused to managing such large acreage or have little idea how to do so. As a result the new NIPF owner is using NIPF for private recreation on increasing numbers of smaller parcels.

One speculation arising from this study is thus that new owners, used to a standard of greater land use density and clearly-marked private boundaries, are importing a new standard of decreased accessibility on smaller parcels. The activity of the owners described above appears to be an increased pace of parcelization on parcels sprouting residences, causing a visible fragmentation of land once open-seeming and accessible. Such parcels are more clearly bounded and privatized. A new ownership ethic regarding public use of these lands may also be imported by such ownerships, and traditional recreational activities such as hunting and fishing have little choice but to move on to other land less clearly marked and in private use.

Fragmented private ownership may be creating increased difficulty for public recreation on NIPF lands. Privatized small ownerships are eating up potential public acquisition and provision of recreation land; as these areas suburbanize and urbanize, more recreation land may need to be provided by the public sector.

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