

Informing Land Use Planning and Forestland Conservation Through Subdivision and Parcelization Trend Information

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This project (1) establishes a database of parcels of land in Vermont, compiled by class size, and documents the current status of land in parcels in 2009, and (2) documents, in a final report and webpage, recent changes to parcel size and ownership patterns, implications for forest management, and specific subdivision and land classification trend information for every municipality in Vermont.

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<http://www.nsrcforest.org>

Project Summary

Subdivision, fragmentation and the conversion of forestland are threatening the economic and ecological integrity of the Northern Forests. While subdivision and conversion pressures have been identified as problems by land managers and policy makers for decades, there has been no systematic tracking of trends to inform planning or resource management.

This project was designed to analyze subdivision trends in Vermont by using state Grand List data for 2003 and 2009 to establish a database of parcels of land in the state, compiled by class size, to quantify the extent of subdivision, and the degree to which subdivision is affecting the viability of undeveloped land for resource management. Furthermore, this project collected subdivision information in eight case study towns to determine whether certain zoning or subdivision policies promote or discourage viable parcel sizes for resource management.

The major outcomes of this project are a final report and webpage which includes a database of parcels of land in Vermont, compiled by class size, and information on the current status of land in large parcels in 2009. The final report highlights recent changes to parcel size and ownership patterns, implications for forest management, and provides recommendations for future action to address subdivision patterns in Vermont. An interactive webpage provides specific subdivision and land classification trend information for every municipality in Vermont.

The final report highlights major findings which have implications for Vermont, and possibly the Northern Forest Region if similar subdivision trends are playing out in nearby states. The report highlights that much of Vermont is still represented in parcels larger than 50 acres in size. While this is encouraging, the report documents that subdivision and parcelization are resulting in ownership of smaller parcels that are no longer viable for forestry and ecological functions. Furthermore, land associated with dwellings is increasing, contributing to the fragmentation of forestland, and forestland values are also increasing, an indicator of the diminished likelihood that a land purchase could be justified as a viable investment in forest management. Furthermore, the report suggests that subdivisions in the 50-100 acre range may be reducing the viability of forestland at a greater percentage than subdivisions involving larger parcels of land.

Background and Justification

- Subdivision, the breaking up of large parcels into smaller parcels (parcelization), and the conversion of forestland are threatening the economic and ecological integrity of the Northern Forests.
- Subdivision and land conversion can negatively affect plant and animal species, wildlife habitat, water quality, recreational access, and the ability of forests to sequester and store carbon. They can also affect the contiguous ownership, management, and viability of forest parcels to contribute to the region's rural economy.
- While subdivision and conversion pressures have been identified as issues for decades, there has been no systematic tracking of subdivision trends to inform planning or resource management.



Credit: Alex MacLean

Background and Justification

- To effectively address forest parcelization, it is necessary to know the extent to which it is occurring.
- The most obvious reason to track subdivision activity is to anticipate where and what type of development is imminent. But the subdivision of land itself has implications, regardless of whether it will lead to development. Smaller parcel sizes may diminish the economic efficiency of management for agriculture or forestry; more owners with different objectives may make large-scale habitat management more difficult; more owners may threaten continued public access for recreation; and certain ecological services may be affected.
- In addition, new subdivisions may indicate emerging market trends, such as where more subdivisions are likely to occur and where land values are likely to rise, thereby making forest management and acquisition of land for forestry or ecological services unlikely.

Background and Justification

- Unfortunately, at the present time there is no consistent way of tracking parcel size or subdivisions to understand land use patterns, trend data, or the long-term implications to Vermont's natural resource base.
- A final report of the Vermont Roundtable on Parcelization and Forest Fragmentation (a diverse group including government officials, foresters, loggers, conservation interests, planners and other forest policy experts) recognizes the limited availability of data on parcelization and recommends that it is essential to begin tracking parcelization rates (Fidel 2007).
- In order to evaluate the effectiveness of existing land use and conservation strategies, or to design effective new programs, it is crucial to quantify subdivision and parcelization trends over time in Vermont and the region.



Credit Blake Gardner

Methods

- Using the state Grand List data for 2003 and 2009, this project established a multi-year database of all the parcels of land in Vermont.
- For each year, data were compiled (by town and by state) on the number of parcels with land, by size class. Other parcel data from Property Transfer Returns and the Use Value Appraisal Program were included to characterize or explain trends, such as ownership (Vermont resident, corporation, non-resident), use category (residence, second home, commercial, etc), whether or not the parcel is enrolled in the use value appraisal program, and value.

Methods

The second part of the project involved data mining in an attempt to identify patterns and associations that could help explain trends and address policy considerations. For example, data was analyzed to address the following questions:

- How do municipalities compare in maintaining parcels that are potentially large enough to be economically and ecologically viable?
- Are there geographic patterns in subdivision trends?
- Are there differences between in-state and out-of-state ownerships?
- Are we seeing the creation of 27-acre parcels in response to incentive programs like Use Value Appraisal (UVA)?
- Are there differences between land enrolled in the UVA Program and not enrolled?
- Is there a correlation between subdivision activity in a town and the value of land?

Methods

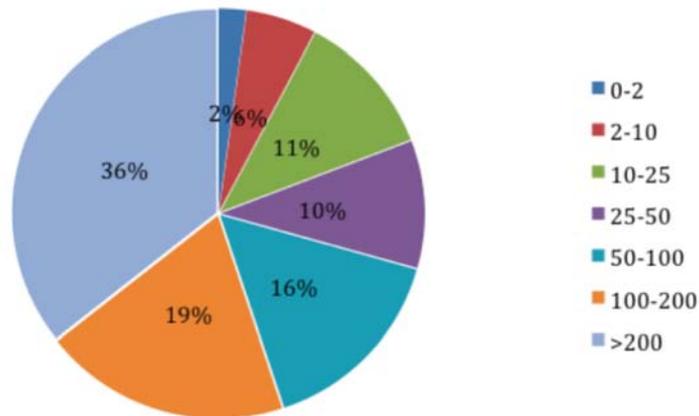
- Beyond examining Grand List data, wastewater permits and well completion reports were examined to add an additional layer of data on new lots that were created between 2004 and 2009.
- Furthermore, eight sample towns were selected to analyze the relationship between subdivision trends and zoning and subdivision regulations. Using a typology system for municipalities developed by UVM's Center for Rural Studies and the Vermont Forum on Sprawl (now Smart Growth Vermont), eight communities were selected that are generally representative of Vermont. Zoning district density (lot area) requirements were analyzed relative to subdivided lot sizes, as were many other factors including the extent to which subdivisions occurred in "Conservation" or "Forest Reserve" zoning districts versus more traditional residential districts.
- Finally, the project examined the ability of other states in the Northern Forest Region to conduct similar subdivision and parcel size analysis. Telephone interviews were conducted with tax and database managers to determine the ability of each state to track and analyze subdivision trend data.

Results/Project Outcomes

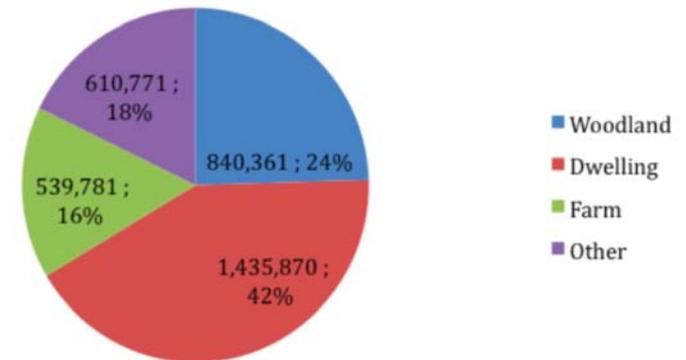
In 2009, although the median parcel size was less than 2 acres, 71% of the land in Vermont was in parcels 50 acres or larger.

In 2009 there were roughly 3.4 million acres of private land in parcels 50 acres or larger.

Acres by parcel size, 2009

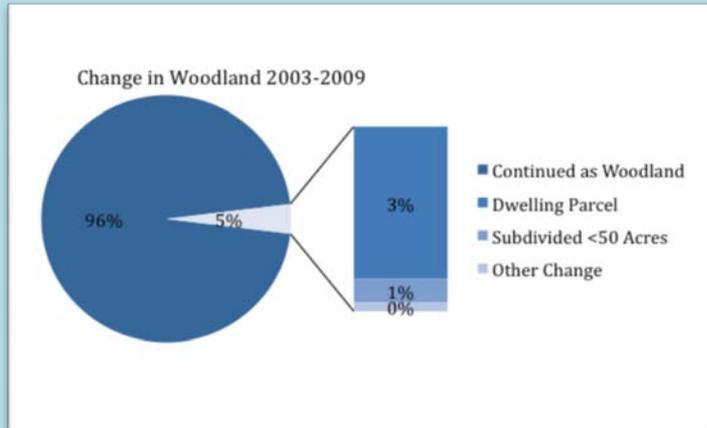


Land in parcels > 50 acres by type of parcel



Results - Woodland

The amount of land in parcels 50 acres or larger that was classified as Woodland decreased by about four percent, or roughly 34,000 acres, between 2003 and 2009. A majority of the change in classification resulted from construction of a dwelling on what had been undeveloped forest.

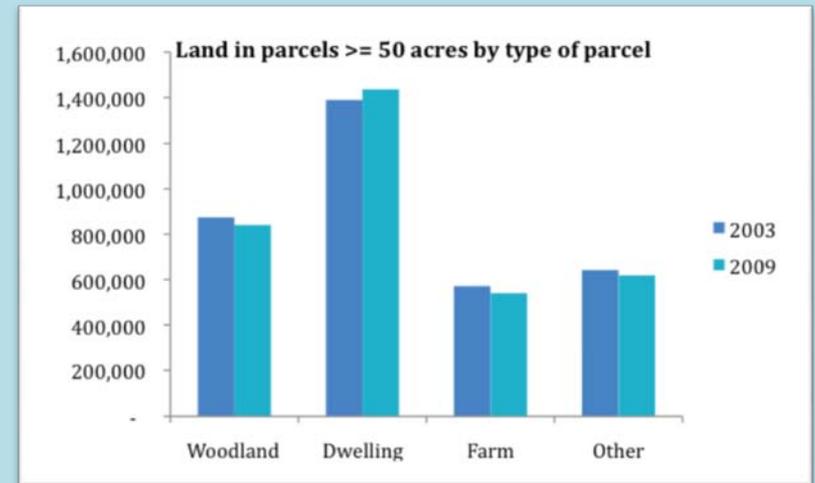
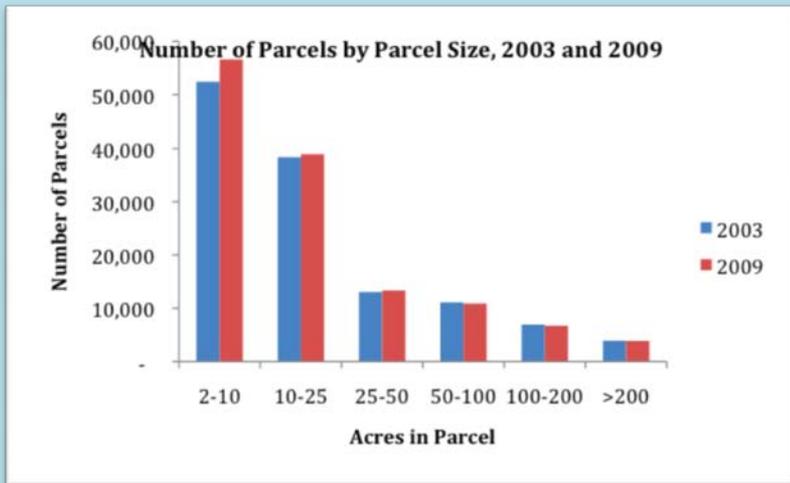


- In 2009, thirty eight percent of 840,361 acres classified as Woodland was held by businesses or corporations. Of the remaining Woodland, sometimes called Non-industrial private forest land, 45% was owned by non-Vermont residents and 55% was owned by Vermont residents.
- Between 2004 and 2009, over 400,000 acres (50% of the total acreage) in Woodland parcels 50 acres or larger changed ownership, according to Property Transfer records.
- 91% of the Woodland parcels 50 acres or larger that were enrolled in the Use Value Appraisal in 2003 remained as Woodland in 2009, while only 82% of the parcels not appraised at use value remained as Woodland.

Results – Parcels 50 Acres or Larger

- Between 2003 and 2009, due to subdivisions, the amount of land in parcels larger than 50 acres declined by about 42,000 acres, or roughly 7,000 acres per year.
- By 2009, even though there was some consolidation occurring – particularly in farms – there were roughly 4,300 net additional parcels between 2 and 10 acres.

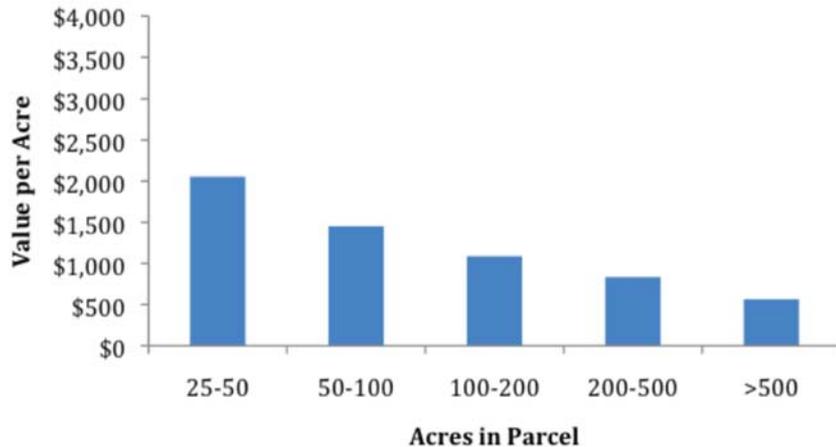
- In addition to less of Vermont's private land being in parcels 50 acres or larger, more of these larger parcels now have a dwelling. Parcels comprising roughly 47,000 acres that previously had no dwellings now have dwellings.



Results - Land Values

- According to assessment records, the value of land in parcels 50 acres or larger appreciated significantly during the study period, from an average of \$930 per acre in 2003 to \$1615 in 2009. Included in this average are parcels with easements, which, by restricting the options available to the landowner, generally should lower the value.
- Between 2004 and 2009, the average per acre selling price of Woodland in parcels 50 acres or larger was \$1,018—eight times the forest use value. The growing gap between the use value and market value of large parcels is an indicator of the diminished likelihood that a land purchase could be justified as a viable investment in forest management.

Per-acre Value of Land Classified as Woodland, 2009



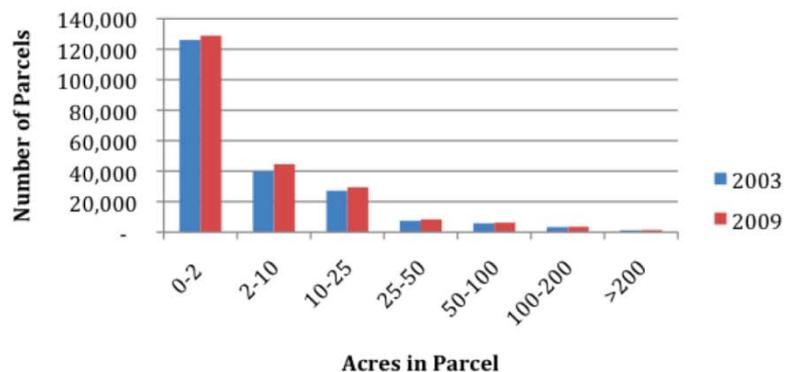
- The market value is related to the rate of subdivision of the larger parcels. As would be expected, the towns losing the greatest percentage of acreage in parcels 50 acres or larger had:
 - *Higher per-acre values for land in these parcels*
 - *More parcels with dwellings (both year-round and seasonal) in the town*
 - *Less land in parcels 50 acres or larger to begin with*
 - *A lower percentage of the land in 50+ acre parcels appraised at use value*

Results

Land with Dwellings

- In 2009, 78% of the land parcels with dwellings were smaller than 10 acres, and only 5% of the parcels were larger than 50 acres.
- The amount of land in parcels with dwellings on them increased by 126,000 acres during the study period.

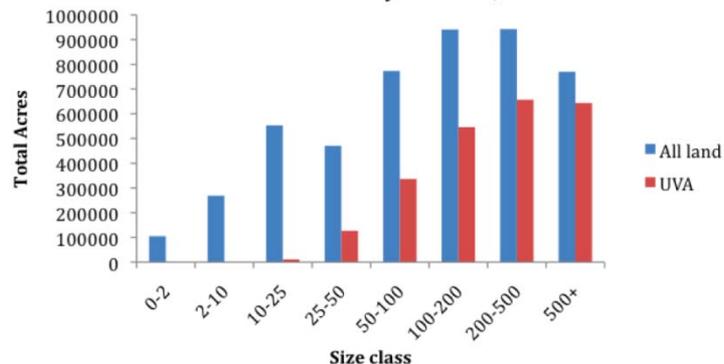
Number of Parcels with Dwellings by Parcel Size 2003 & 2009



Use Value Appraisal

- Between 2003 and 2009, about 300,000 more acres were enrolled in the Use Value Appraisal Program, bringing the total to 2.2 million acres. The parcels enrolled comprise 59% of the privately owned land in parcels larger than 25 acres and 64% of the privately owned land in parcels larger than 50 acres.

All land and UVA land by Size Class, 2009



Results – Relationship of Subdivision Trends and the Provisions of Zoning and Subdivision Regulations in Case Study Towns

- In eight case study towns, subdivision is occurring in a very incremental, albeit steady, pace with an average subdivision resulting in the creation of between 2.3 and 3.7 lots (including the parent parcel).
- Almost all of the subdivision development was reviewed at the local level and not by Act 250.
- The vast majority of land subdivision in the case study communities during the study period occurred in rural “default” districts – land largely characterized by a mix of agricultural, forest and low to moderate density residential land uses. Thus, most residential development appears to be occurring at low densities in rural areas rather than in compact existing centers or planned growth centers.
- Very little subdivision activity involved land within designated Forest Reserve or Conservation Districts.
- In general, subdivisions that occurred in the large acreage category of 100 acres or more retained a very large lot, generally with one or more smaller lots being created, thereby preserving at least some potential viability for long-term forest management and resource functions.
- Results were much more varied in subdivisions that involved the medium size category of 50 to 100 acres, with some subdivisions retaining large lots, and others creating fractured parcel ownership, with many parcels unable to support enrollment in Use Value Appraisal, or long-term forest management goals.

Implications and Applications in the Northern Forest Region

- This study highlights that a significant portion of Vermont is still represented in parcels larger than 50 acres. While the subdivision trends outlined in this report are cause for concern, there is still a real opportunity to maintain Vermont's rural land base by supporting existing and new policies and programs.
- This study suggests that a large percentage of development may not trigger state level review through Act 250. Because of this, municipalities should examine whether they have sufficient policies to address the effects of parcelization on forestland. Gaps should be identified and stronger policies should be enacted to promote the viability of forestland in subdivisions, especially those that are occurring in the 50-100 acre range.



Implications and Applications in the Northern Forest Region

- This study does suggest that the market value of large parcels is sufficiently higher than their value for forest management, indicating that the investment in large forest parcels is often based on development or subdivision potential. This makes it difficult for anyone interested only in forest management to pay the purchase price, and it makes it less likely that the land will remain intact and undeveloped through transactions.
- Although the current use programs in the Northern Forest states enable so-inclined owners to hold on to the land by bringing the carrying costs in line with forest value, these programs do not similarly affect the purchase price. And, although these programs penalize landowners for converting enrolled land, they do not prevent conversion. To maintain, in perpetuity, large forest parcels that can be sold and purchased as investments in forest management, efforts to acquire the parcels—or easements on these parcels—must be vigorously undertaken and effectively funded.

Future Directions

- This study suggests that fragmentation of forest blocks is also occurring from construction of new dwellings and related clearing on large parcels. Research should be conducted to understand the extent to which dwellings affect the functions and integrity of forest blocks, including wildlife habitat, public access, and forest management.
- This study suggests that subdivisions that occurred in the medium size category of 50 to 100 acres may be resulting in parcels that are no longer able to support long-term forest management goals. This finding is based on a small sample size of towns in Vermont. It would be beneficial to conduct a second phase of research to analyze subdivision trends in a larger subset of towns that have zoning bylaws or subdivisions, including qualitative review of the subdivisions and related impacts on forest resources. This analysis would better verify the need for municipalities to promote land use policies that address parcelization rates and patterns within the 50 to 100 acre category.

Future Directions

- A GIS layer with parcel boundaries and parcel information would clearly improve our ability to track fragmentation, understand areas of the state that are most threatened, and identify areas to focus efforts on maintaining viable forests.
- Although there are some communities that have created GIS layers with their parcel boundaries, none of the Northern Forest states has a complete consistent GIS layer of parcel boundaries.
- A uniform parcel identification system is also crucial—even before the parcel information is part of the GIS. Currently, municipalities in most states are free to design their own identification systems, to varying degrees. In order to track subdivision trends, we recommend the following:
 - *Statewide parcel identification numbers so there are not duplicates*
 - *A method for determining the total parcel when a parcel straddles municipal boundaries*
 - *A method for determining the parent/child parcels when parcels are subdivided or merged*
- Even without the GIS layer, a better tracking system for parcels would allow for more accurate tracking of permit conditions or policies that run with the parcel and a consistent method for checking changes in the status of property against various restrictions, programs, and permits.

List of Products

TECHNICAL REPORT

Informing Land Use Planning and Forestland Conservation Through Subdivision and Parcelization Trend Information



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List of Products

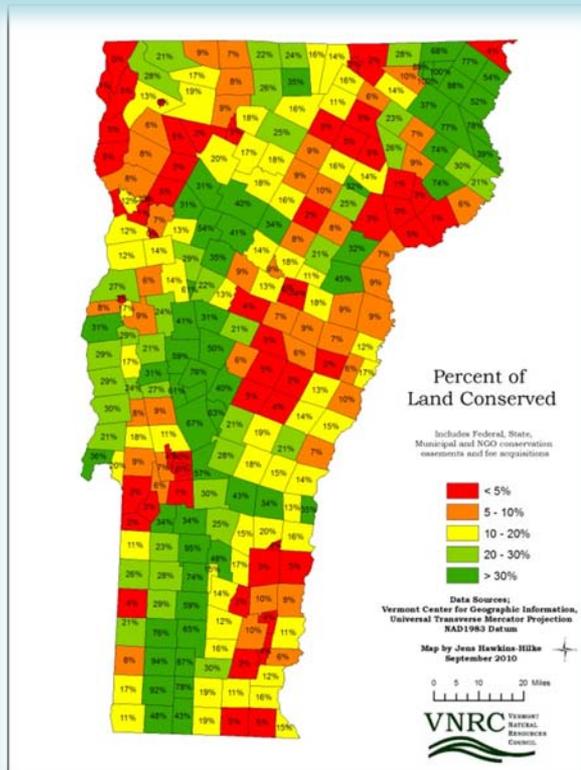
WEBPAGE

<http://svr3.acornhost.com/~vnrcorg/report/>

Webpage provides a link to the Technical Report, analysis, maps, recommendations, and a specific statewide database and search capability for subdivision, land classification and land valuation information for every town and municipality in Vermont.

List of Products

STATEWIDE MAPS



PRESENTATIONS

- *Vermont Monitoring Cooperative Annual Meeting, 2010*
- *Private Lands Stewardship Team Meeting – Vermont Fish and Wildlife Department, 2010*
- *Vermont Association of Planning and Development Agencies (Pending)*