

Progress Towards Achieving the Vermont Conservation Design Old and Young Forest Targets



Vermont Fish and Wildlife Department
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Summary

- Currently, old forests comprise less than one percent of Vermont's forest. VFWD is refining our methods for tracking these areas in our Natural Heritage Database.
- Approximately 213,000 acres of Vermont forest are "future old forest lands," areas that we expect to develop into old forests over time. These represent about 50% of the Vermont Conservation Design old forest target.
- The best available data show that Vermont has less young forest than the 3-5% target of Vermont Conservation Design. VFWD and VT FPR are working to develop methods to better track young forest.

Old Forests

Vermont Conservation Design old forest target

Approximately 9% of Vermont's forest (equating to about 419,000 acres), distributed proportionately across all biophysical regions and representative of Vermont's widespread/matrix natural community types. Acreage targets by biophysical region are shown in Figure 1.

Current old forests in Vermont

Our best estimate is that less than one percent of Vermont's forest is currently old forest. This includes scattered old forest patches that are part of our widespread/matrix natural communities, such as Lords Hill in Marshfield and The Cape in Chittenden. This also includes small swamps and uncommon upland forests, like dry oak woodland natural communities, that are old forests. Many of these existing old forests are not legally protected to ensure they retain their old forest characteristics. The Vermont Fish and Wildlife Department has been tracking old forest conditions as part of its Natural Heritage Database for years. However, the Department is currently refining our ability to map and track old forests as part of our natural community inventory and data management. This will help substantially in our ability to keep track of how well we are meeting Vermont Conservation Design old forest targets.

Future old forests in Vermont

In 2017, the Vermont Fish and Wildlife Department conducted an initial assessment of “future old forest lands.” These are lands which, based on our interpretation, seemed likely (though not necessarily legally restricted) to remain unharvested and develop over time into old forests. A list of the areas identified as future old forest lands is included in Appendix 1.

Future old forest lands were assessed for their contributions to the old forest targets by biophysical region and by modeled natural community type¹. A detailed breakdown of these results is shown below in Tables 1.

Overall, we estimated that 213,125 acres of Vermont forest are, in our interpretation, future old forest lands, likely to remain unharvested and develop into old forests over time. This is 51% of the overall Vermont Conservation Design old forest target of 419,000 acres.

Broken down by biophysical region, only the Southern Green Mountains region has sufficient future old forest lands to meet the old forest target—in fact, it is over target, owing to the areas of National Forest that seem likely to develop into old forest. In the Northern Green Mountains, future old forest lands achieve about 73% of the target. Future old forest lands in the remaining biophysical regions only meet 0-28% of their old forest targets.

Modeled natural communities in these areas can offer a rough estimate of how representative these future old forests are of matrix natural communities in each region. In the Southern Green Mountains, high-elevation (montane) forests and northern hardwood forests are well-represented, but forests with hemlock and oak appear to be under-represented in future old forest lands. In the Northern Green Mountains, montane forests are over-represented, while northern hardwood forests, and hemlock and oak forests, appear to be under-represented in future old forest lands. The remaining regions are all far enough below target that it is probably not meaningful to assess representation; more old forest examples of all matrix natural community types are needed.

¹ Modeled natural communities were used in the absence of complete natural community mapping for all areas. Based on data from: Ferree, C and M. G. Anderson. 2013. A Map of Terrestrial Habitats of the Northeastern United States: Methods and Approach. The Nature Conservancy, Eastern Conservation Science, Eastern Regional Office. Boston, MA.

Table 1: Acres of Future Old Forest Lands (lands identified by VFWD as likely to develop into old forests over time) by biophysical region and modeled natural community type, and their contributions to the Vermont Conservation Design old forest targets. Modeled natural community types may not accurately reflect natural communities on the ground but provide a rough estimate of representation.

Biophysical Region ->	Northeastern Highlands	Taconic Mountains	Champlain Valley	Champlain Hills	Vermont Valley	Northern Green Mountains	Northern Vermont Piedmont	Southern Vermont Piedmont	Southern Green Mountains
Matrix Forest Natural Community Type									
<i>Montane Spruce-Fir Forest/ Montane Yellow Birch-Red Spruce Forest</i>	596	1,139	n/a	n/a	n/a	27,424	1,161	74	12,964
<i>Red Spruce-Northern Hardwood Forest</i>	1,256	0	n/a	0	0	59	396	0	3,403
<i>Lowland Spruce-Fir Forest</i>	236	0	n/a	n/a	n/a	23	124	0	636
<i>Hemlock-Northern Hardwood Forest/ Red Oak-Northern Hardwood Forest</i>	0	4,070	2,990	0	113	122	245	1,934	3,593
<i>Northern Hardwood Forest</i>	9,482	4,003	0	0	82	41,973	2,136	462	92,431
CURRENT TOTAL	11,569	9,211	2,990	0	195	69,601	4,062	2,470	113,027
Old Forest Target for Biophysical Region	59,000	33,000	15,000	13,000	4,000	95,000	78,000	31,000	91,000
Percent of Old Forest Target Achieved by Future Old Forest Lands	20%	28%	11%	0%	5%	73%	5%	8%	124%

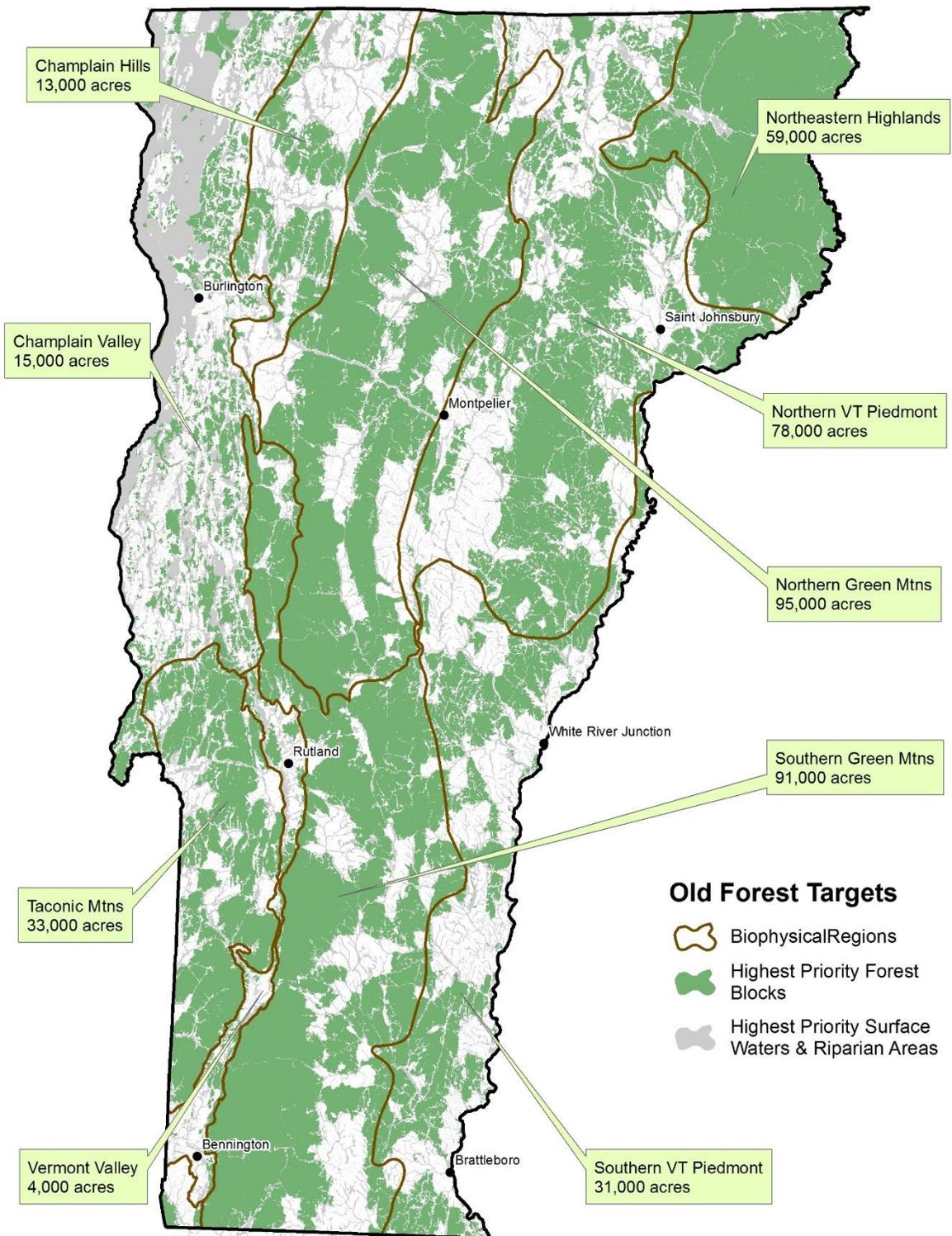


Figure 1: Old forest targets in Vermont Conservation Design.

Young Forests

Vermont Conservation Design young forest target

A percentage of the forest in each biophysical region should be young forest:

- 5% of the forest in young forest condition: Northeastern Highlands, Northern Vermont Piedmont, and Northern Green Mountains
- 3-4% of the forest in young forest conditions: All other biophysical regions

Acreage targets by biophysical region are shown in Figure 2.

Status of young forests in Vermont

Our best current estimates, derived from US Forest Service Forest Inventory and Analysis data, indicate that Vermont has less young forest than the 3 to 5% targeted in Vermont Conservation Design. These estimates are shown by biophysical region in Figure 2.

Young forest habitat is created primarily by timber harvesting and natural disturbances, such as windstorms. As young forest is a transitory habitat condition, it is not practical to map and track young forest in the same manner that we map and track old forests and natural communities. Instead, VFWD and VFPR are working on a method to use remote sensing (aerial photos and Lidar) to periodically identify the location and amount of young forest present in the state. This will provide a consistent and more accurate assessment of how well we are meeting young forest targets.

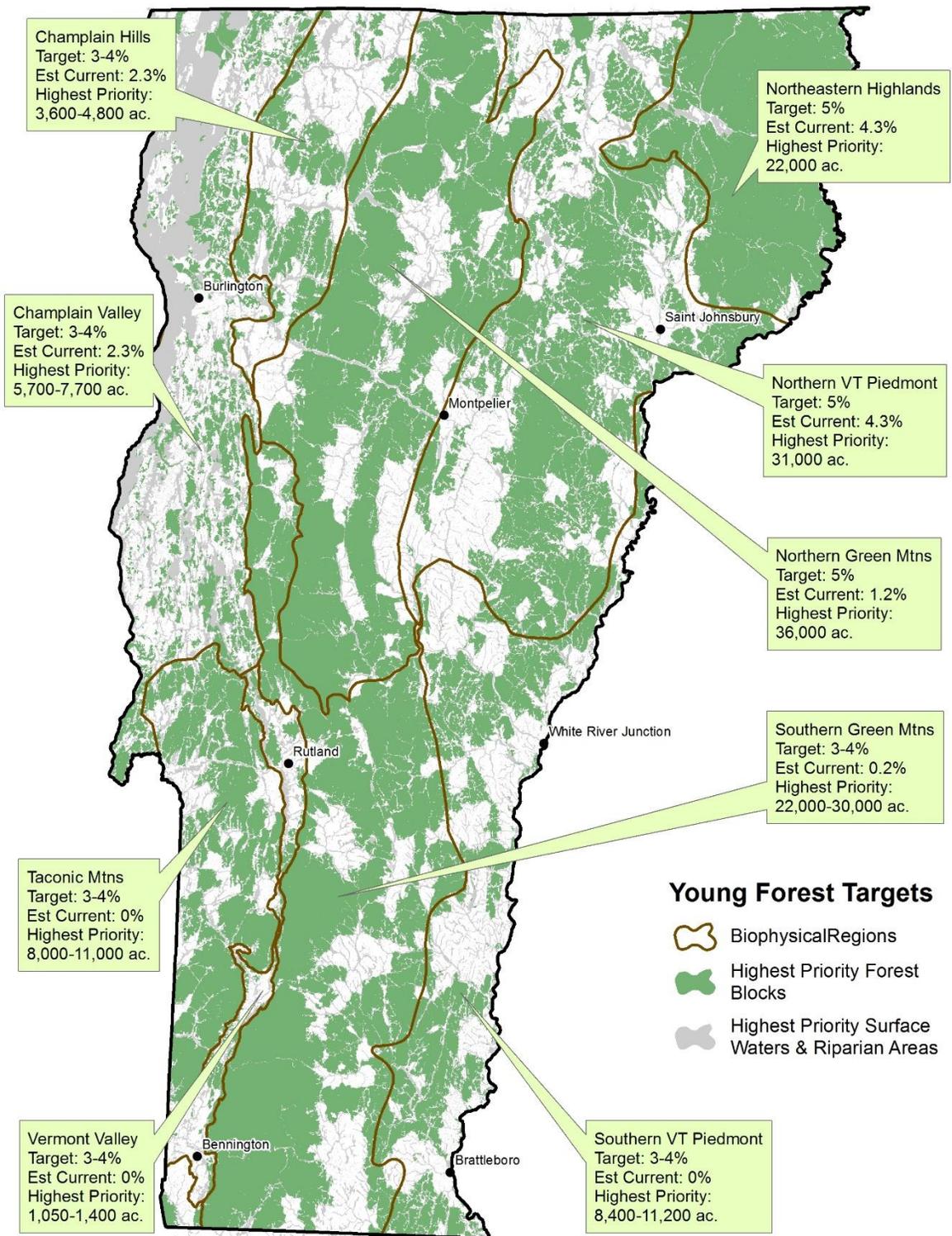


Figure 2: Young forest targets in Vermont Conservation Design. “Est Current” indicates estimate of current young forest abundance based on US Forest Service Forest Inventory and Analysis data.

Appendix 1

Based on Vermont Fish and Wildlife Department's interpretation, the following areas were identified as likely to remain unmanaged and become old forest over time:

- Green Mountain National Forest Wilderness Areas
- VT FPR Natural Areas (10 V.S.A. § 2607)
- VFWD West Mountain WMA "Core Area"
- NGO-conserved lands where timber harvesting is excluded
- Vermont ANR Lands above 2,500 feet elevation (excluding ski area leases)
- Green Mountain National Forest lands above 2,500 feet elevation (excluding ski areas)
- Green Mountain National Forest management areas likely to remain unharvested and operating primarily under natural processes:
 - Alpine/Subalpine Special Areas
 - Appalachian National Scenic Trail
 - Ecological Special Areas
 - Existing and Candidate Research Natural Areas
 - Long National Recreation Trail
 - Remote Backcountry Forests
 - Wilderness Study Areas

Notes:

These areas represent VFWD's interpretation of lands unlikely to be harvested and likely to develop into old forests over time. However, only some of these areas are legally protected in a way that promotes development of old forest.

These categories can overlap (for example, an NGO easement on state lands) but the acres are only counted once in the analysis.

We recognize there may be exceptions to some categories (for example, harvesting above 2,500 feet), but we judged these to be minor compared to the overall acreage.

There are other ANR lands likely to become old forest, both because of physical constraints such as steep slopes and because of management goals. Additional analysis and digital mapping are needed to fully assess their contributions to the old forest targets.