INVASIVE SPECIES CONTROL & PRODUCT RECOVERY: A Woodland Management Planning Challenge

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ABSTRACT

- The City of Middletown wishes to actively manage their open space lands.
- This project demonstrates how to create a plan for a forest management activity that can apply to more than one problem.
- How we identify specific forest management problems and decide on appropriate management actions is illustrated.
- The Problems: White pine stands on the Wilcox Open Space parcel are overcrowded. Trees show signs of stress, slow growth and some are dying. Invasive species are also a concern, particularly Japanese stilt grass along the trails. Dying trees are a hazard to hikers.
- We want a stand of healthy white pine trees that have space to grow and trails free of invasives and hazards.
- This calls for cutting out some poor trees. In the process, use the wood material for wood products and chips for mulch to bury the Japanese stilt grass and groom the trails.
- By thinning out poor trees, can hazards be removed and enough chips be produced?

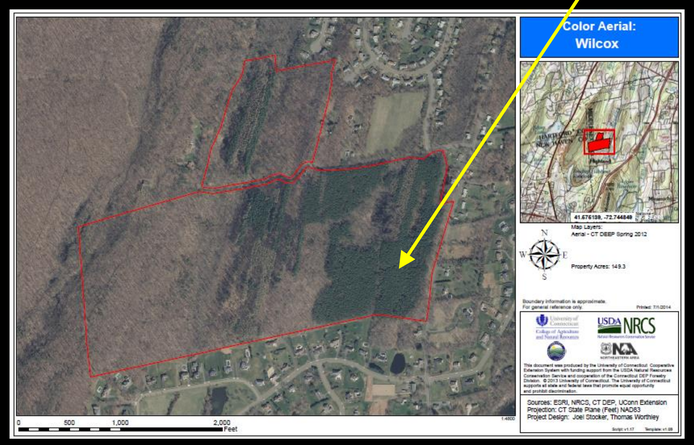


Fig 1. Map of the Wilcox Open Space Preserve, Middletown, CT. Map credit: UConn Extension

INTRODUCTION

The Wilcox Parcel (above) needs more active management. The white pine stands are in poor condition. It is an area used for recreation and to protect wetlands and habitat features. It is an attractive area in the neighborhood.
A tour of the property revealed some serious concerns:

1. White pine stands that are key features are overcrowded and stagnating (according to the Extension Forester) including dead and broken trees.
2. This is dangerous for recreation and is contrary to heathy forest growth. Restoring the health of these stands is a long-term goal.
3. Invasive species are another problem. Most glaring is Japanese stilt-grass, which spreads along the trail system and deep into the forest. This species has the ability to thickly occupy large areas and choke out native herbaceous growth.

We propose a single well-planned forest improvement activity to solve these resource problems.

PROCEDURES

Project Area Identified

- Wilcox Preserve, Middletown Open Space, Atkins Road (see Figure 1).
- White pine stand portion of the property.
- Focus on two forest species, one to improve, one to control.

Resource Inventory

- With the help of the UConn Extension Forester, a fixed area plot method was used to sample the white pine stand: All trees on 1/10th acre plots were measured.
- Species of each tree and diameter of trunk at 4.5 ft high (DBH) were recorded.
- Basal area for each tree (cross-sectional area at 4.5 ft high) was calculated. BA (sq. ft.) = 0.005454DBH^2 .
- Measuring tapes and calipers were used to measure distances and diameters.
- Sample data was projected to a per-acre basis.
- Trail widths and lengths in a portion of the stand were measured to quantify Japanese stilt grass infestation.
- Cubic feet of mulch chips required to control was estimated from these measurements.

Fig 2. (Above) View of one of the Wilcox Preserve Trails. Photo by Angela Barthel.

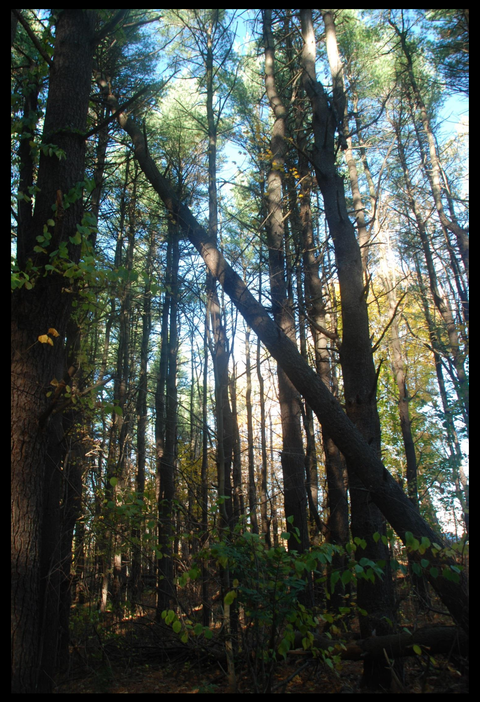
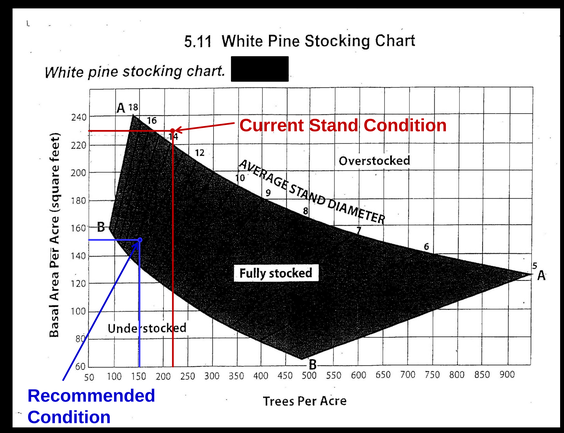


Fig 3. (Left) View of overcrowded white pine stand. Photo by Angela Barthel.

Fig 4. (Below) Infestation of Japanese stilt grass along the trail. Photo by Angela Barthel.

Inventory Results

- According to our inventory the stand has 220 white pine trees per acre and 225 square feet of basal area. The stand is overstocked (crowded).
- Japanese stilt grass can be found on over 3000 feet of trails.
- Average width is 8 feet.
- The Extension Forester provided a stocking guide for white pine, that helps to see healthy and unhealthy conditions for white pine stands (see Figure 5).



Management Recommendations

- The stand would be healthier and desirable trees would have room to grow if there were 150 trees and 150 square feet of basal area per acre (See Figure 6).
- Some trees need to be thinned out (removed), smaller, poorly growing trees, about 1/3 of the total.
- Japanese stilt grass can be controlled by mulching it with 6" of wood chips[1].

Questions

- What volume of chips is required to mulch and control Japanese stilt grass on these trails?
- Can wood residues from the thinning of white pines produce enough chips to control Japanese stilt grass?

Calculations

- To compute the amount of chips we would need: Length of trail x width of trail x 0.5 foot thick.
- To compute the amount of chips the thinning would produce: From the numbers, we estimate that 4 cords of wood residue per acre would be produced from thinning.

Fig 6. Views of white pine stand and canopy showing poor trees that might be removed X and desirable trees ● that might benefit from thinning. Photos by Angela Bartel.

CONCLUSION

Although we were unable to carry out this management plan due to weather hazards, our management suggestions will help make it easier for the town of Middletown to improve the health of the forest in a way that improves the economic value of the forest, the health of the forest, and makes it a safer, more enjoyable place for the community.

ACKNOWLEDGEMENTS

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REFERENCES

1. Japanese Stiltgrass. *New York Invasive Species Information*. Retrieved from: http://nyis.info/index.php?action=invasive_detail&id=32.