

### 1. Introduction:

The University of Delaware currently owns forests in the White Clay Creek State Park that protect the surrounding watershed. This study sought to assess the forest quality and habitat health of these forests, which occur in a zone of urban-rural transition. These lands have previously been used for agriculture but today have reverted back to deciduous and evergreen forest, presently shaped by urbanization and development.



### 2. Methods:

We conducted a field survey of the university owned forest and assigned ratings in a comparative fashion of poor, fair and good based on criteria provided by Kaddy and Drummond (1996) and the Delaware State Park Division of Parks and Recreation Trail Committee (Table 1). Maps based on our findings were constructed using GIS and compared to forest types from previous land use data from Delaware DataMIL. Areas were estimated from Google Earth.

Table 1. Summary of forest quality categories (poor, intermediate, fair) with a description of each level of health.

Forest Quality Category	Qualifying Factors
<b>POOR</b>	Small trees Density of understory brush > density of canopy species High percentage of invasive species
<b>FAIR</b>	Intermediate sized trees Density of understory brush ≈ density of canopy species Mid percentage of invasive species
<b>GOOD</b>	Large trees Density of understory brush < density of canopy species Low percentage of invasive species

### 3. Results:

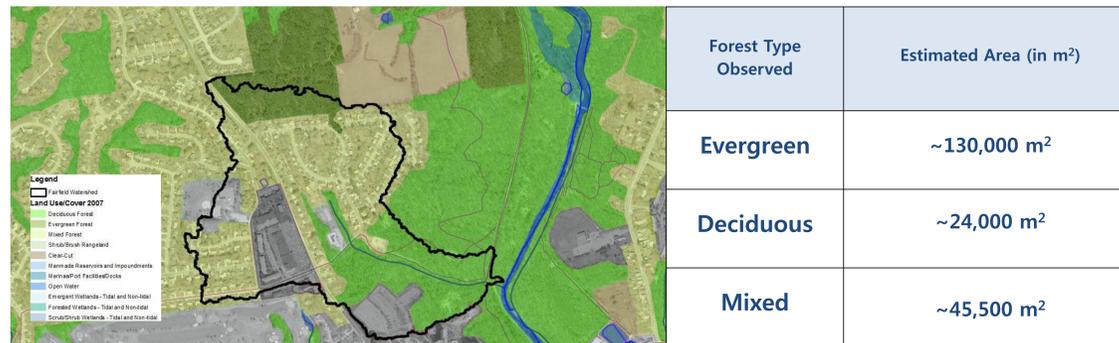
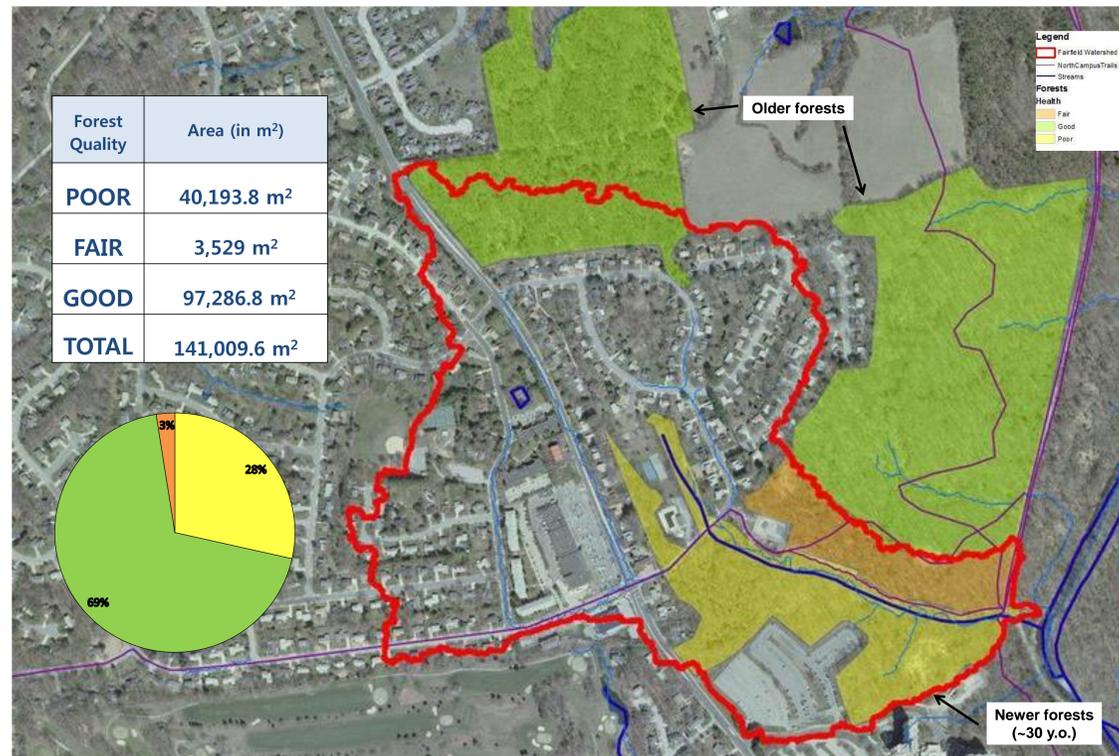


Table 2. Qualitative findings of forest survey.

Areas Assessed	Grade	Characteristics
Forest behind the Laird campus towers to the south of Fairfield Run Stream	<b>Poor</b>	Mixed forest, young Smaller trees Low abundance of tall canopy trees High abundance of understory species (i.e. low lying brush) High density of thick invasive multiflora rose
Forest north of the Fairfield Run Stream to the Fairfield Run Watershed boundary	<b>Fair</b>	Deciduous forest, young Intermediate sized trees and large trees Abundance of canopy species ≈ abundance of understory species Multiflora rose abundant but not extremely thick
Remaining forest surrounding the Fairfield Run Watershed	<b>Good</b>	Mainly deciduous forests, some evergreen forests, old Larger trees High abundance of tall canopy trees Low abundance of understory species (i.e. much clearer forest floor) Invasives multiflora rose still present but not significant

### 4. Conclusions:

For future studies, a quantitative analysis of (1) tree diameter and height, (2) density of understory species, (3) density of canopy species, and (4) percentage of invasive species per area would allow for a statistical comparison of the health of these forest regions assessed.

A future forest restoration plan is needed and would not only allow for the return of those poor forest areas to healthy conditions, but also would preserve the good regions. Recommended activities for this plan include: controlling and removing invasive plants; planting native vegetation in open spaces; pruning young trees to promote greater tree health; and other appropriate maintenance to allow optimal health of trees.



### 5. Acknowledgments:

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### 6. References:

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