

## APPENDIX E

### **FORESTRY DEMONSTRATION AREA**

#### **Competing Vegetation, Deer Browsing, Light (CDL)**

## Forestry Demonstration Area

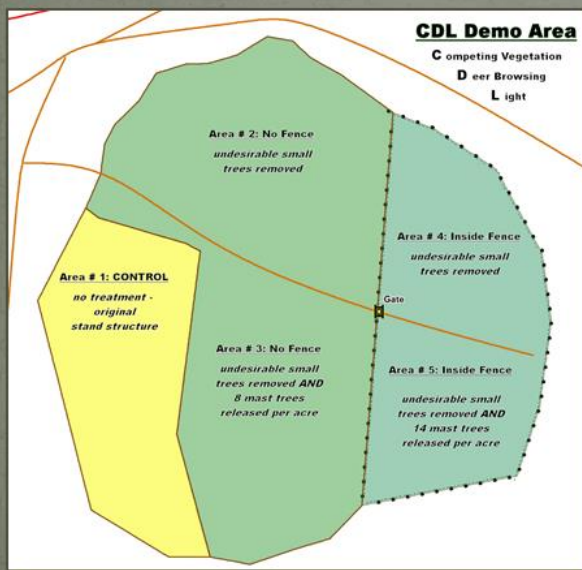
Currently, the forestlands of Gov. Dick are lacking desirable tree seedlings and saplings to ultimately replace the aging trees. This educational site is an ongoing demonstration of:

1. the effects of competing vegetation as it relates to tree seedling establishment;
2. different levels of sunlight on natural tree regeneration; and
3. over-browsing of white-tailed deer.



# Forestry Demonstration Area

This demonstration area is divided into five specific areas:



- Four areas have been altered to allow varying degrees of sunlight to reach the forest floor.
- Two of those areas are surrounded by a deer-exclusion fence.
- One area remains unaltered to act as a visual barometer for the rest.

# Forestry Demonstration Area

## CDL Demonstration Area

(established 2015)

“CDL” is an acronym for:

- Competing Vegetation
- Deer Browsing
- Light

These three factors determine whether or not natural tree regeneration can occur on any given sight.

# Forestry Demonstration Area



## Competing Vegetation

Some vegetation inhibits tree seedling growth. Most times it is well-established prior to the tree seed germination, and as such it can easily out-compete the growth rate of desirable tree seedlings. Therefore, if this vegetation exists, it must be controlled to allow for seedlings to grow.



## Forestry Demonstration Area



### Deer Browsing

Deer preferentially feed on native vegetation with some tree species being most desirable. Tree seedlings and stump sprouts stand little chance of survival should deer be even slightly abundant in an area.

## Forestry Demonstration Area



### Light

The quantity of light on the forest floor is determined by the amount of vegetation in the forest. Since the prominent tree species of Pennsylvania thrive in sunlight, germination and survival need large amounts of sunlight. Many of the tree species at Governor Dick require more sunlight to germinate and grow than is currently available.



## Forestry Demonstration Area

- Area 1 - Representative of how the entire demonstration area looked before any vegetation was removed.



## Forestry Demonstration Area

- Area 2 - Mid-story black birch, black gum and red maple were removed to increase sunlight by approx. 5% on the forest floor. These trees ranged from 1" to 10" diameter at breast height (d.b.h.)





## Forestry Demonstration Area

- **Area 2** - Brush piles were constructed from the downed trees to create cover for wildlife. Amphibians thrive in this moist habitat.



## Forestry Demonstration Area

- **Area 3** - Undesirable small trees were removed in area 3 as well. However, larger trees were also harvested to further increase the amount of available sunlight for seedling growth. Stumps of the harvested overstory trees are marked with a PINK flag (Post #7). Now we might expect to encourage more “shade intolerant” tree species to germinate and grow. You could expect to see cherry, ash and poplar to enter into the picture.





## Forestry Demonstration Area

- **Area 3** - PINK bands can be found on 6 very large trees in this plot. Remember our goal to increased light on the forest floor to allow seed to germinate. Thinking ahead, we will need a healthy, viable seed source. These pink banded trees were specially selected because of their superior health, vigor and species desirability.



Being stronger and healthier means that more nuts, acorns, drupes and samaras can be produced.

Therefore, other trees touching the crown of the selected few have been removed. This harvest technique is known in forestry as "Mast Tree Release" and is used to accelerate growth on specimen trees that exhibit qualities desired in the future forest.

## Forestry Demonstration Area

- **Area 4 and 5 (deer exclusion fence)** -

In much of Pennsylvania deer are overabundant and always very hungry. Therefore, protection from over browsing must be considered, especially on non-huntable grounds such as Gov. Dick. Deer congregate here to a fault; eating themselves out of house and home. If tree seedlings do manage to become established, they are soon consumed by deer. The fence will demonstrate the highly negative effect that "too many deer" have on the environment.





## Forestry Demonstration Area

- **Areas 4 and 5** - Fences are a temporary, effective, but costly means of protecting newly established seedlings, usually lasting for a for a period of 6 to 10 year. At this age the seedlings should reach a height sufficient to protect terminal buds from deer browse damage. Other than the fence, the treatment in Area 4 is identical to that of Area 2. Likewise for Area 5 as it relates to Area 3 albeit with several more trees per acre designated as mast trees. See map for clarification.



## Forestry Demonstration Area

First summer's growth.. Off to a good start!





## Invasive Species

- Not native to United States
- Highly prolific
- Typically have no predators for natural control
- Uncontrolled populations take over vast areas prohibiting natural plant species to exist
- Spread by humans, livestock, and wildlife

## Invasive Species

**Norway maple – just one tree... so many seedlings**





# Invasive Species

## Eastern tent caterpillars



## Gypsy moth egg masses



Invasive plants and interfering understory vegetation must always be monitored and controlled when needed.





# Interfering Understory

## Spice Bush

