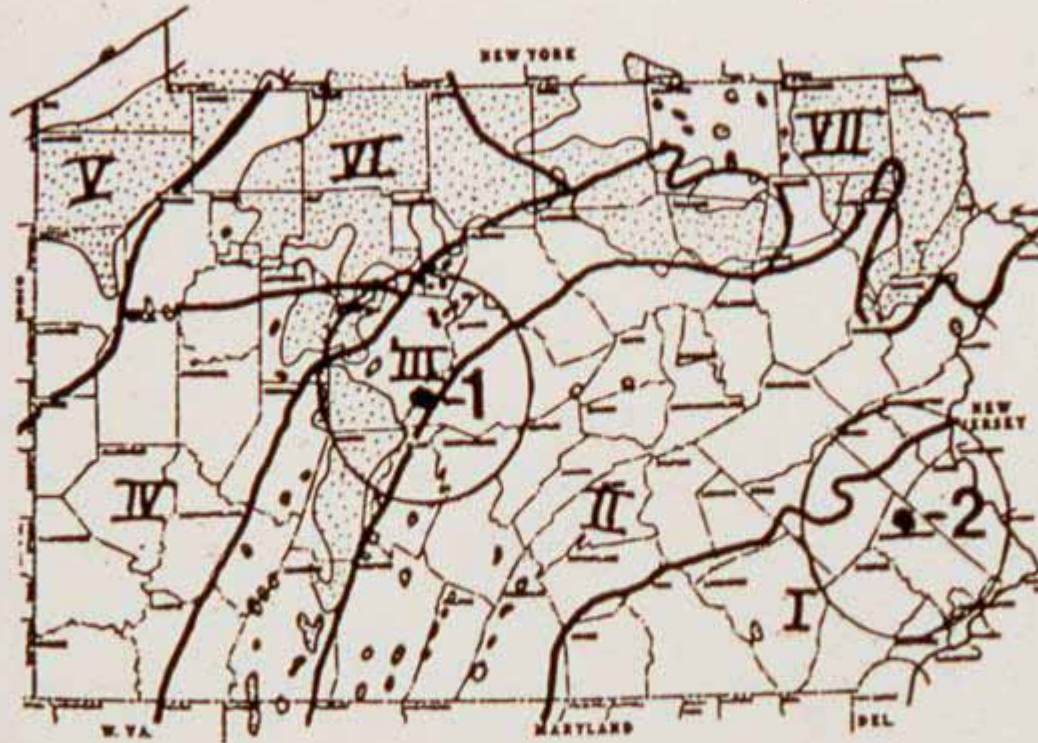


Integrated Vegetation Management on Pennsylvania Rights-of-Way



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PROJECT LOCATIONS



- 1 Game Lands 33, Allegheny Mountain Province, Centre County, PA.
- 2 Green Lane, Piedmont Province, Montgomery County, PA.

Early History

- SGL 33 Project started as a demonstration area because hunters opposed to use of herbicides
- Intent was to show how selective use of herbicides can have economical, aesthetic, and wildlife values; very interdisciplinary
- Green Lane Project modeled after SGL 33 Project

Maintenance of SGL 33 and Green Lane rights-of-way

Handcutting (no spray): used as reference

*Four to five mechanical and herbicidal
treatments* used by utilities:

For instance, mowing, mowing plus
herbicide, foliage spray, stem-foliage
spray, low volume basal spray

Handcutting at SGL 33: Reference



Mowing with herbicide unit at SGL 33



Maintenance Goals of IVM:

- Control of Undesirable Trees: shown effectively over years
- Establishment of Plant Cover Types (to resist tree invasion) – grass, forb, short shrubs in wire zones
- Reduce maintenance costs (labor/chemicals)
- Provide wildlife benefits

“wire-border zone”

- “Wire-border zone” method implemented on both ROW
- Wire zone = 90 feet (10 feet to each side of wire)
- Border zone = 50 feet to each side of wire zone

Wire Zone-Border Zone Method



Wire-border zone with resultant cover types: grass-forb-shrub (wire), shrub-tree (border)



Major Accomplishments of Both Projects (SGL 33 and Green Lane)

- *Integrated Pest Management*: stable plant cover types develop that resist undesirable tree (“pest”) invasion via use of herbicides
- *Reduction in costs and labor* (crew-hours and herbicide amounts reduced)
- Produce *valuable wildlife habitat* via “wire-border zone” method

Dissemination of Project Results



- Annual Reports to Cooperators
- Publications in scientific journals: *J. of Arboriculture*, *Natural Areas Journal*, *PA Academy of Science*
- Numerous speaking presentations

Target Tree Invasion Monitored Annually in Each Unit



White Ash

Target (Undesirable) Tree at Green Lane



Update on Cover Types and Tree Heights in Wire Zones

- SGL 33: low-lying shrubs (e.g., blueberry) and forbs (e.g., goldenrod) major types
- SGL 33: tallest trees = 2-24 feet, usually less than 7 feet
- Green Lane: grass (e.g., fall panic grass) or forbs (e.g., goldenrod) major types
- Green Lane: tallest trees 1-7 feet, usually less than 4 feet

Wildlife Studies at State Game Lands 33 and Green Lane



- Wildlife studied at both SGL 33 and Green Lane
- Studies of songbirds, reptiles, amphibians, butterflies, small mammals, and deer
- Timely from scientific and PR perspectives

Ongoing American Woodcock Population Study (7th year of study)



- Long-term study examining the use of the ROW as a traditional breeding area
- Species on decline in Northeast
- With current and pending interstate development, ROW should become more important to this valuable gamebird

American Woodcock Study

- In 7th year, populations have increased (impact of I-99 south of ROW?)
- Singing male numbers on ROW range from 1-3 in 2000-03, but at least 7-8 in 2004-06
- Wire zones with unobstructed flight path; border zones with shrubs as cover from predators

Study of Mammals on both ROW



- Key components of food chain
- Major predators on insects, seeds, etc.
- Important prey for hawks, owls, foxes

White-footed Mouse and Woodland Jumping Mouse



Small Mammals at State Game Lands 33 (2004-05)

- 7 species in 1989-90 vs. 8 in 2004-05
- 27 animals captured/100 trap-nights in 1989-90 vs. 10/100 trap-nights in 2004-05
- Most common species were white-footed mouse, then meadow vole, and deer mouse
- Important cover types were blackberry (can thicket) and forb-grass

2006: State Game Lands 33

- Deer last studied in 1984; pattern after NPS work (spot-lighting, browse counts, pellet counts, deer bed use)
- Continue woodcock study (present paper in MI at woodcock symposium)
- Vegetation sampling (cover types, target tree densities)

Preliminary Browsing Results: 2006 at SGL 33

- 70% of undesirable tree species (black oak group, white oak group, black cherry, red maple, sassafras) browsed in wire zone
- 50% of undesirable tree species browsed in border zone
- 30% of undesirable tree species browsed in nearby forest

% of undesirable species browsed by deer (n, preference)

- Red maple 73% (73, high)
- White oak 46% (24, high)
- Chestnut oak 80% (30, high)
- Sassafras 39% (51, high)
- Red/black oak 58% (66, moderate)
- Black cherry 66% (29, low)
- **Total** 60% (273)

50+ Years of Research on Rights-of-Way in Pennsylvania



Wire-border zone method of ROW maintenance:

1. Economical (labor/ herbicide costs)
2. Aesthetic
3. Sound wildlife and habitat management
4. Many *thanks* to cooperators over the years for continual and complete support – truly an interdisciplinary effort