Response of *Microstegium vimineum* and *Lonicera japonica* to continuous cover forestry practices

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*Microstegium vimineum*
Nepalese browntop, Japanese stiltgrass, Mary's grass
- Annual C₄ grass
- Shade tolerant
- Shallow roots
- Mesic soils
- Most of eastern US
- Class C noxious weed in Alabama

*Lonicera japonica*
Japanese honeysuckle
- Semievergreen to evergreen woody vine
- Shade tolerant
- Tolerates a wide range of site conditions
- Most of US
- Ornamental and deer browse

Background
- Silviculture study looking at forest management options for private landowners at the urban-rural interface
- Continuous cover forest management
- Promote the continued establishment and development of tree reproduction

Silviculture study objectives
- Apply gradient of cutting regimes.
- Quantify the relationship between residual forest structure and understory microclimate (especially light).
- Assess the relationship between the understory environment and seedling growth response.
Quantifying Forest Environment
- Vertical and horizontal structure
- Understory microclimate

Assessing Relationships Between:
- Canopy structure and light transmittance
- Canopy structure and development of planted cherrybark oak, yellow poplar, and water oak seedlings
- Canopy structure, light transmittance and growth of Microstegium and Lonicera

Fifty 0.05 ha plots in riparian hardwood forest

Structural manipulations:
- Control: No trees cut
- Light cut: 1/3 of all midstory trees cut
- Moderate cut: 1/2 of all midstory trees cut
- Heavy cut: all midstory trees cut

Methods

- Biomass
  - Percent cover - 1 m² plots (spring and late summer)
  - Clip plots (late summer)

- Photosynthesis
  - Photosynthetic light curves

- Fecundity
  - Clip plots (after seed set)
Chasmogamous flowers - flowers that open, exposing stamens and styles to the environment allowing potential cross-pollination

Cleistogamous flowers - flowers that do not open and are self-pollinated

Conclusions

- *Microstegium* was more responsive than *Lonicera* to the moderate increase in light.
- First year results may not fully reflect the potential impact of *Lonicera*.
- Herbicide treatments may be required.

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Questions?