Integrating invasive species management in forest and landscape conservation

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Invasive species need to become a necessary component of landscape planning and biodiversity conservation.
Integrate invasive species sampling.
  • Presence, Abundance, and Absence

Capture standard, cost-efficient information on invasive species

VSP can also be used to support specific needs of invasive species inventory and monitoring.
  • E.g., to compare invaded sites to the rest of the landscape; define reference sites and conditions

*VSP—Vegetation Sampling Protocol
Inventory and monitoring protocol and partnership.
• Applicable to
  – Landscape/ regional needs
  – Stand / property / parcel sampling
  – Plot level sampling
Loss of Ash due EAB impact
In some areas Ash makes on average 30% of total biomass.
Ash biomass is often more than 40%
What is the extent of Ash across landscapes?

Modeled distribution of White Ash based on VSP plots.
What is the extent of Ash across landscapes?

Modeled distribution of Black Ash
What is coming after Ash?
Swamps: What is going to come after Black and Green Ash (and Elm)?
Forest regeneration

- Acer saccharum
- Fraxinus americana
- Prunus serotina
- Prunus virginiana
- Fraxinus pennsylvanica
- Acer rubrum
- Rhamnus cathartica
- Thuja occidentalis
- Fagus grandifolia
- Cornus alternifolia
- Tilia americana
- Abies balsamea
- Carya cordiformis
- Quercus rubra
- Acer negundo
- Sorbus americana
- Tsuga canadensis
- Ulmus americana
- Fraxinus nigra
- Pinus strobus
- Populus tremuloides
- Acer spicatum

Height ranges:
- 05-15m
- Above 15 m
Buckthorn is the most frequent invasive plant expressed as number of plots in which a species was sampled. Species names are composed by the first four letters of the genus name and the first three letters of the species name. For example, garlic mustard is “Allipet”.
Abundance of Common Buckthorn recorded using VSP

Rhamcat % cover per VSP plot
- 0 - 5
- 5 - 10
- 10 - 20
- 20 - 40
- 40 - 80
MODELED DISTRIBUTION OF EUROPEAN BUCKTHORN (*RHAMNUS CATHARTICA*) FOR ECODISTRICT 6E10. THE MODEL WAS DEVELOPED USING VSP PLOT DATA. RED INDICATES AREAS WITH A HIGH PROBABILITY THAT EUROPEAN BUCKTHORN IS A DOMINANT SPECIES, AND ARE MOSTLY CONFINED TO AREAS ADJACENT TO THE ST. LAWRENCE RIVER CORRIDOR.
Relative Abundance of Invasive Buckthorn per VSP Plot in Guelph, ON (2016)

Buckthorn in Ash woodlots.
Adaptive management across landscapes

• need to be prioritized using sound inventory and monitoring information.
Is necessary to prioritize conservation and management actions to ensure efficient allocation of resources.

Buckthorn abundance in woodlots.
Buckthorn abundance in woodlots.
Integrated inventory and monitoring as part of:

- Land use and landscape planning
- Natural Heritage System planning
- Species at Risk recovery planning
- Biodiversity conservation
- Climate change adaptation
- Forest management
- Estimates of ecological goods and services
- Carbon offsets
- Invasive species management
- And new and unforeseen needs

Satisfying these needs requires a strategic, multiple scales and diverse applications perspective!
Thank you

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