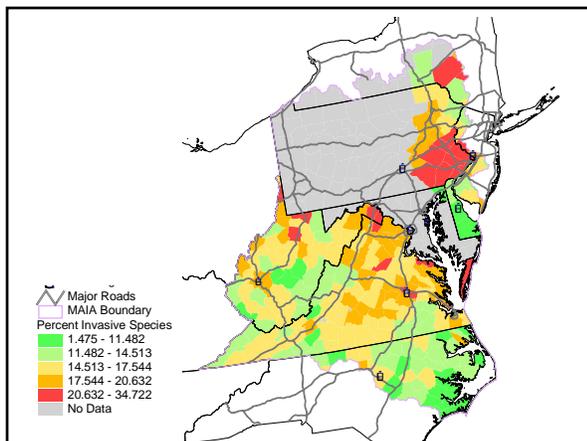
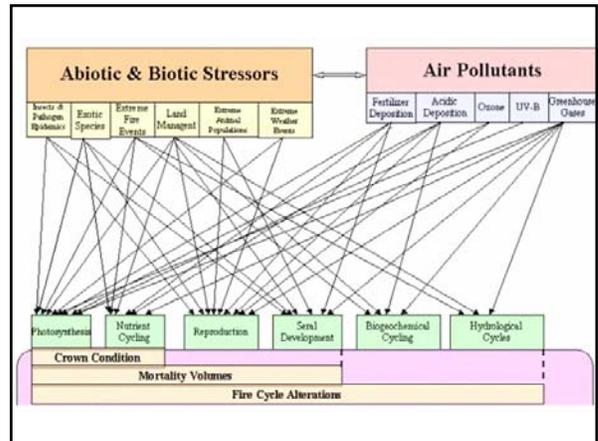
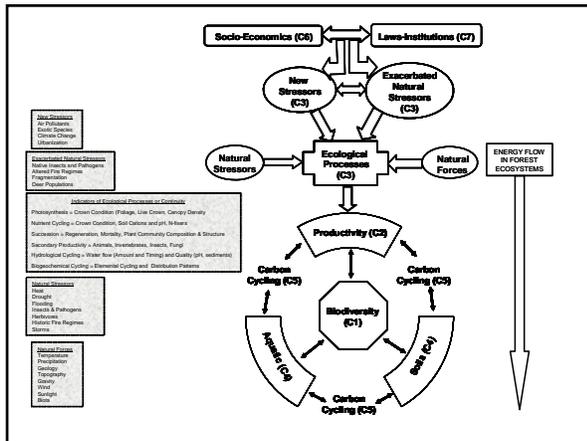


Evaluation Monitoring of Exotic Invasive Species and Collaboration of Citizen-Scientists

- Kenneth W. Stolte**
 Research Ecologist
 USDA Forest Service R&D,
 Research Triangle Park, NC 27709
kstolte@fs.fed.us
- Andrew Brown**
 Chief CEO
 Equinox Environmental Consultation and Design, Inc.
 64 Biltmore Avenue
 Asheville, NC 28801
 (828) 253-6856 (O)
 (828) 674-8954 (C)
andy@equinoxenvironmental.com
- Citizen Environmental Monitors (CEMs)**



Exotic Species Monitoring Levels 1, 2, and 3

- Level 1 Survey Areas** (areas, streams, rivers, trails, etc.) near Urban Areas as likely points of Introductions
 - Identify locations where Exotic Species are found
 - Use GPS to relocate points where exotic species are found
 - Fill out data sheets and collect voucher specimens (pressed and digital photography)
- Level 2**
 - Determine the extent of Exotic Species intrusions into adjacent Forest Ecosystems
- Level 3**
 - Establish FHM/FIA Fixed Area Monitoring Plots in Areas with and adjacent to High Density of Exotic Species in Forests and at Points of Introductions

Exotic Species Monitoring Level 1

- Locate areas with High Probability of having introductions of Exotic Species
- Conduct Level 1 Surveys of Vulnerable Areas
- GPS marks locations where exotic species are found
- Data Sheets record information on exotic species

SAMAB Invasive Plant Monitoring Data Sheet (Level I)

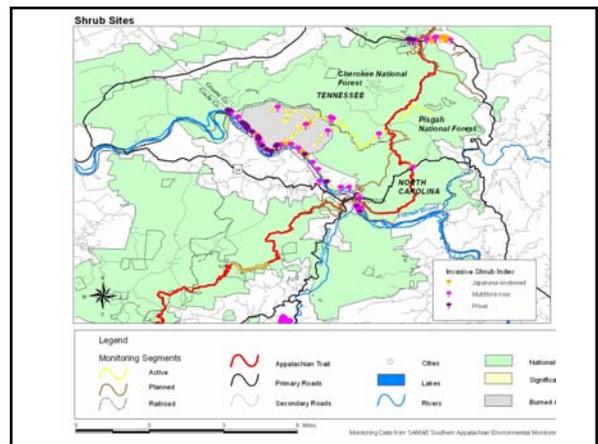
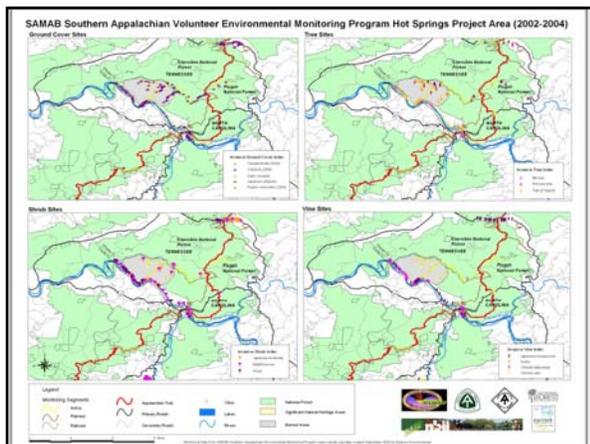
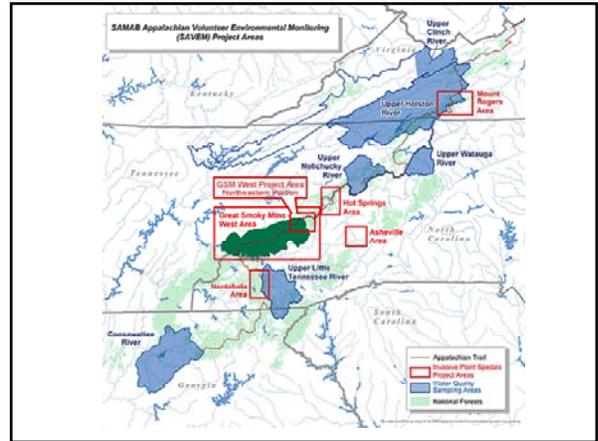
A monitoring event may consume a number of data sheets.
The "General Information" section only needs to be filled out on the first page of a monitoring event.
When complete with a monitoring event, please copy all data sheets,
retain a copy for your records, and submit a copy to:
Andy Brown, c/o Equinox, 64 Biltmore Avenue, Asheville, NC 28806.

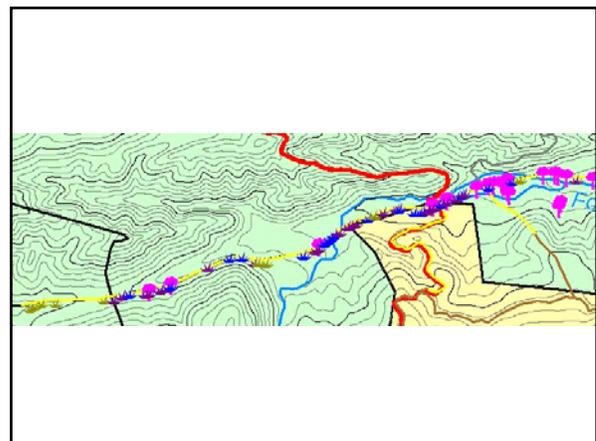
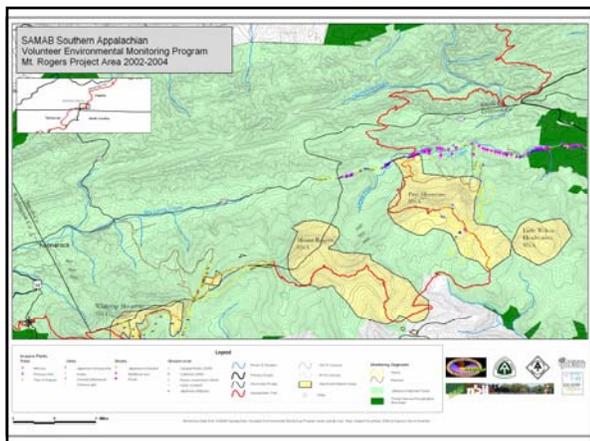
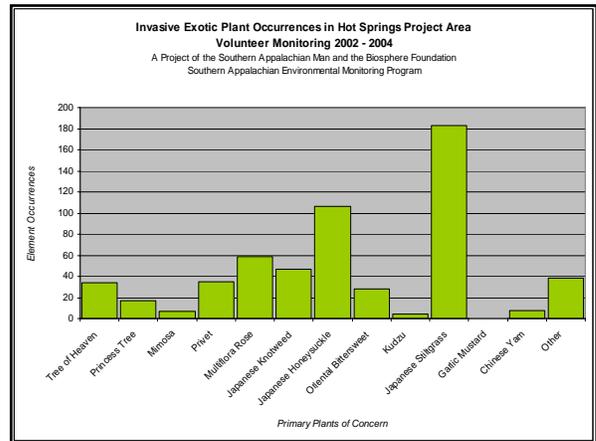
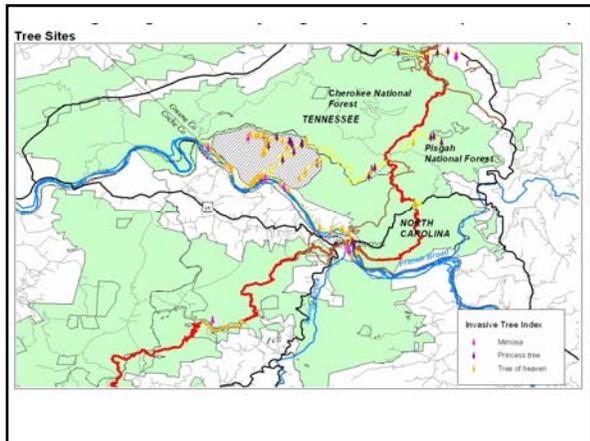
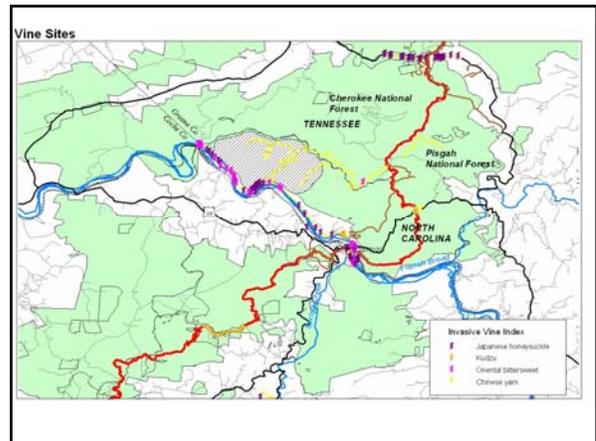
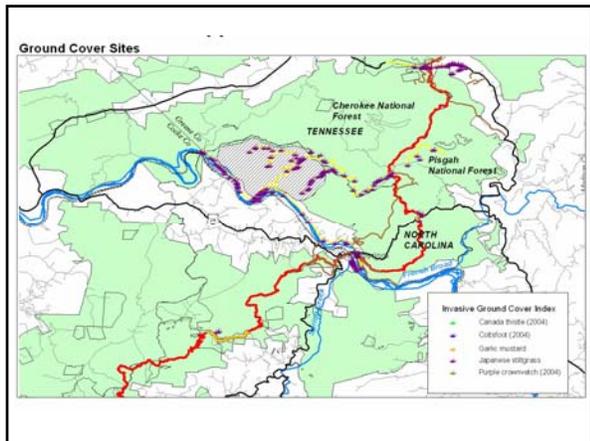
General Information

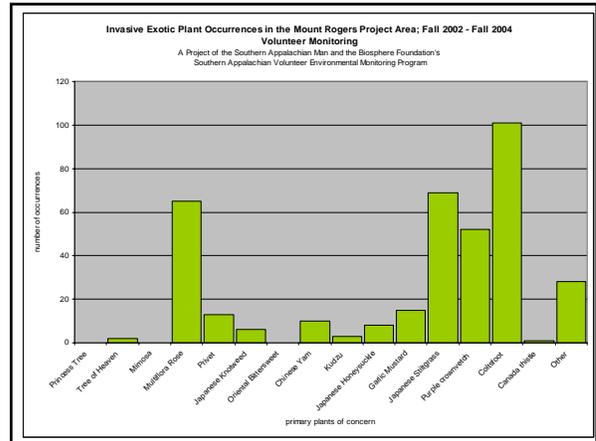
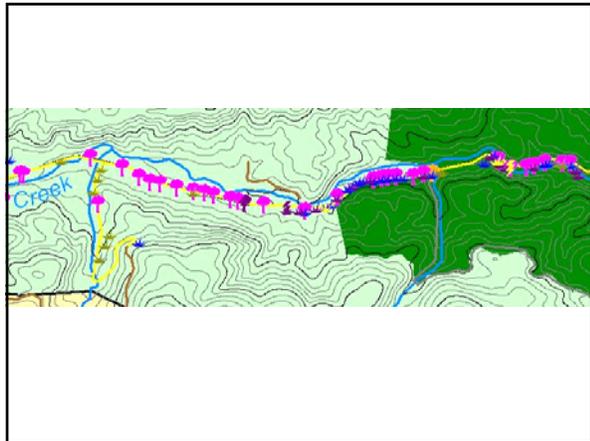
Collection Date: _____
Monitoring Team Member Names: _____
Time Begin Survey: _____ Time End Survey: _____
Town, County, and State of Survey: _____
Monitoring Segment (from x to y): _____
USGS Topographic Quadrangle: _____

Species	Area (Sq Ft)	Est. # Stems	Diamtr Lgst	WypL. #	Latitude	Longitude	Notes (landmarks, photos, etc.)

Data Sheet Page #: _____



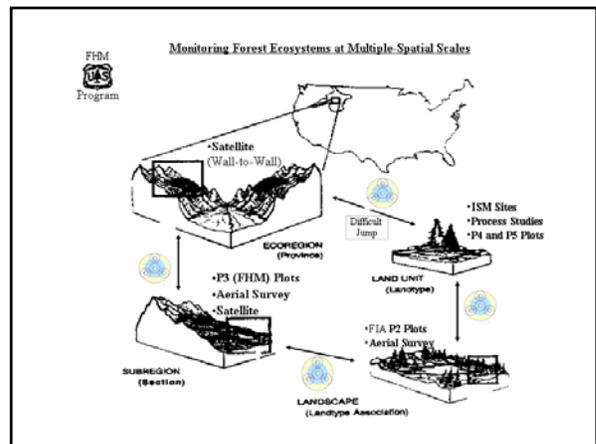
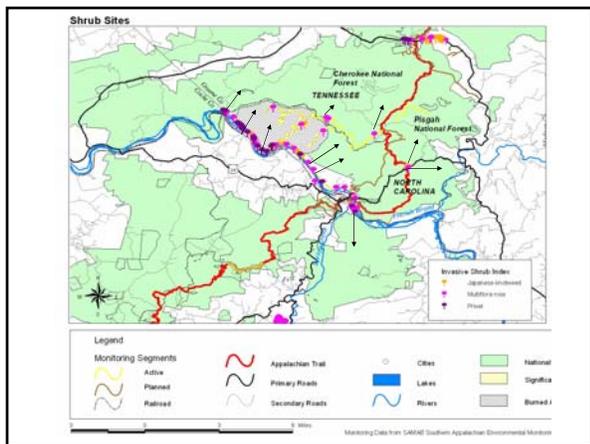


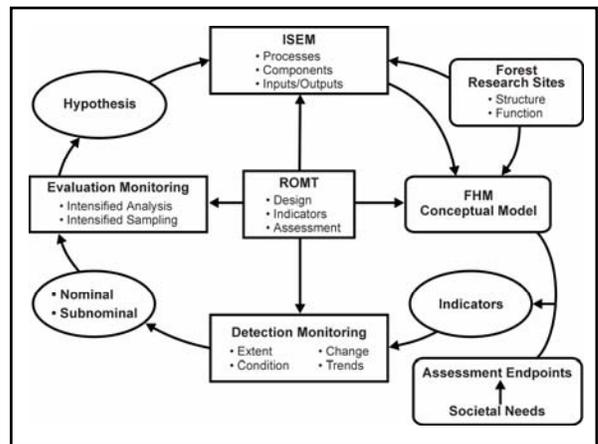
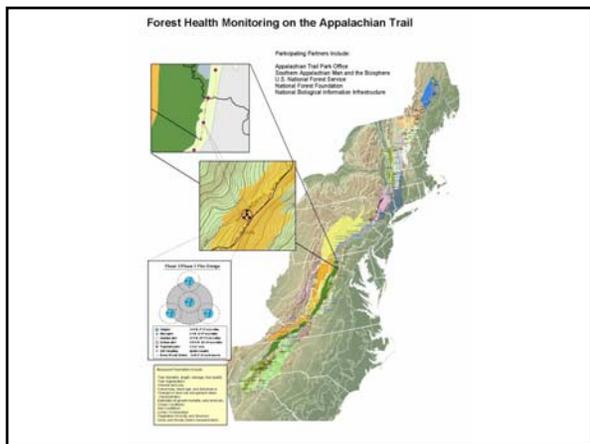
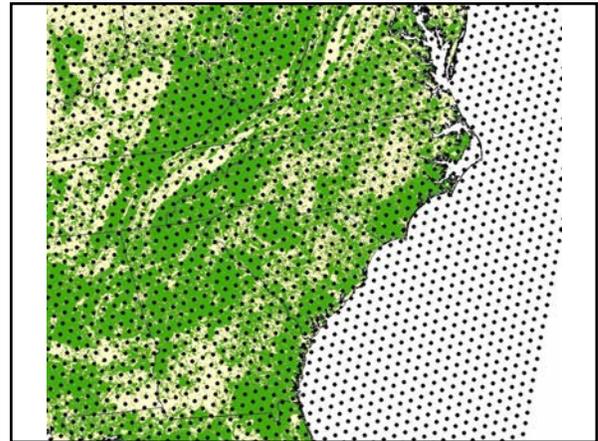
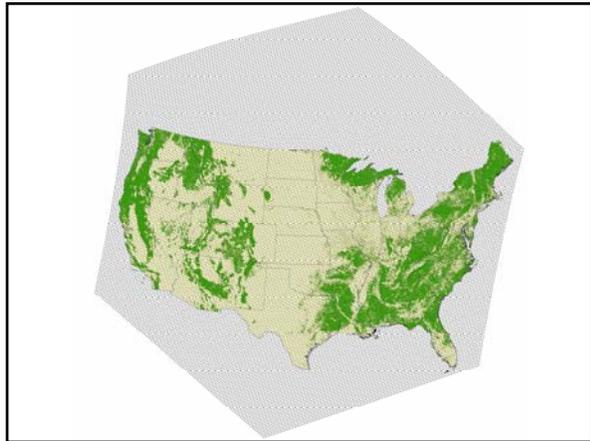
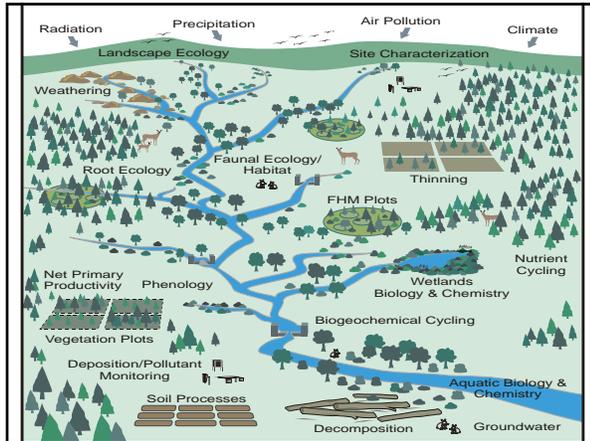


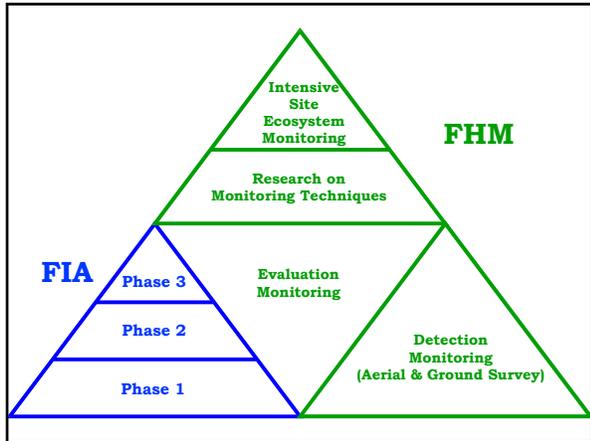
Exotic Species Monitoring Level 2 (Year 1 of FHM-EM Project)

- **Identify Extent of Exotic Species Spread**
 - Use Level 1 Locations to begin Level 2 Surveys
 - Use Exotic Species **Habitat Summary Information** to guide formulation of Level 2 Surveys
 - Use GIS to identify **probable Invasion Routes**
 - **Conduct Level 2 Surveys** of Exotics into Forests
 - Identify **Locations and Extent** of Exotic Species into Forests with GPS, topo maps, etc.

Invasive Exotic Plant	Habitat Preferences				Forest Community	Terrestrial				Sub				Soil Biological				Reproductive Strategy
	light	water	soil	deciduous		shade	open	dry	acid	moist	nutrient	wind	birds	plants	people	soil	trails	
Trees																		
Tree of Heaven																		
Prickly Pine																		
Mimosa																		
Shrubs																		
Privet																		
Japanese Knotweed																		
Mullein Rose																		
Japanese Spiny																		
Flurry Olive																		
Kudzu																		
Red Honeylocust																		
Vines																		
Japanese Knotweed																		
Japanese Spiny																		
Kudzu																		
Chinese Yew																		
Wine Grape																		
Grass/Forbs																		
Japanese Knotweed																		
Japanese Spiny																		
Kudzu																		
Japanese Spiny																		
Wine Grape																		

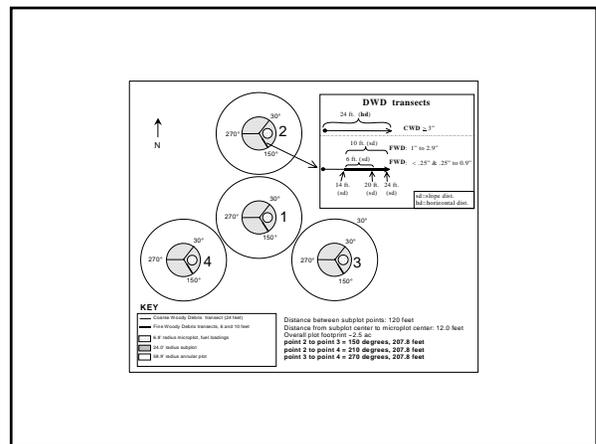
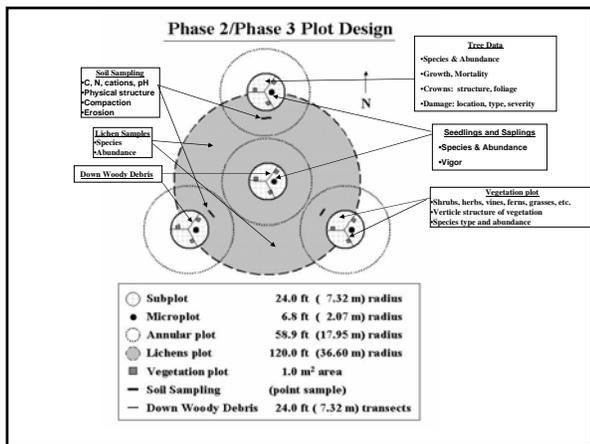
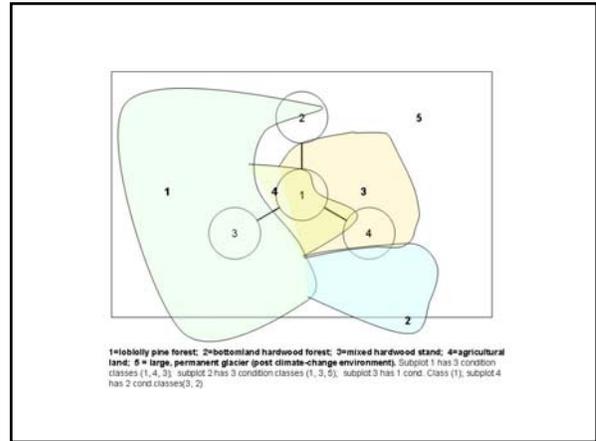
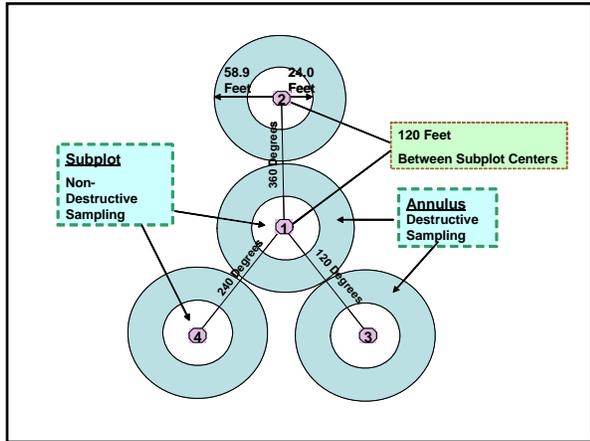


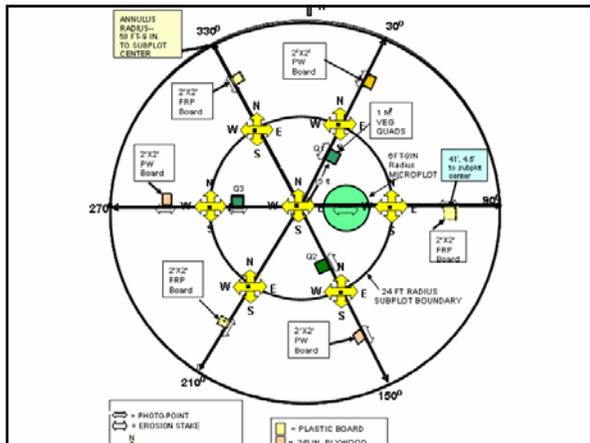




Exotic Species Monitoring Level 3 (Year 2 of FHM-EM Project)

- Establish FHM/FIA Fixed-Area Plots in areas with High Density of Exotic Species
 - Use **Stratified-Random Sampling** of Exotics by Species or Groups of Species
 - Establish Long-Term **FHM/FIA Monitoring Plots**
- Select most-appropriate **FHM/FIA Indicators**
 - Tree Condition, Growth, Regeneration, Mortality
 - Understory Vegetation Composition
 - Soil Physical and Chemical Characteristics
 - Others?





Exotic Species Monitoring Level 3 (Year 3 of FHM-EM Project)

- Establish FHM/FIA Fixed-Area Plots in areas Adjacent to (but not containing) Exotic Species
 - Use **Stratified-Random Sampling** of Adjacent Areas based on similar Forest Types, Soils, Understory, Physiography, etc.
 - Establish Long-Term **FHM/FIA Monitoring Plots**
- Select same **FHM/FIA Indicators** as in Exotic Species Plots
 - Tree Condition, Growth, Regeneration, Mortality
 - Understory Vegetation Composition
 - Soil Physical and Chemical Characteristics
 - Others?

