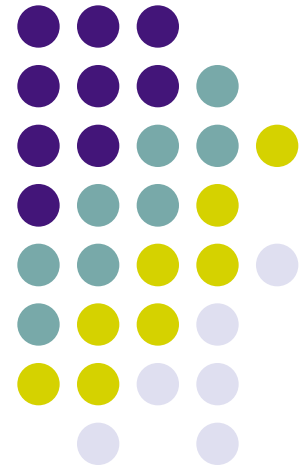
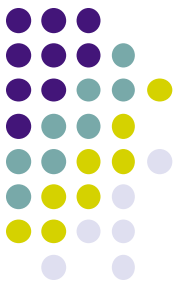


Lower Canopy Assessment & Multi-resource Survey Design

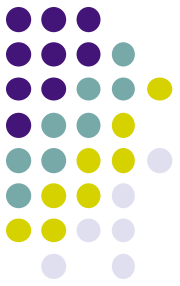




Learning Objectives ...

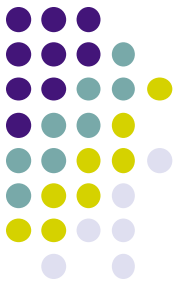
- Appreciate, by example, the complex nature of including all environmental components when designing a multiple-purpose resource inventory
- Recognize how lower canopy vegetation fits into a multi-resource inventory and
- Data analysis for lower canopy vegetation & lab report requirements

Vegetation & LOD Surveys

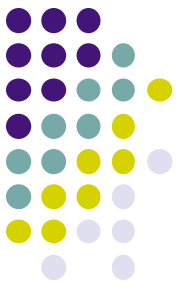


- ✦ Part of multi-resource inventory
 - Need information on the entire ecosystem
 - Need to gain information on
 - ✓ Forest structure
 - ✓ Hydrology
 - ✓ Soils, microclimate
 - ✓ Wildlife
 - ✓ Human dimensions
 - ✓ Variability in conditions
 - ✓ System processes

Vegetation & LOD Surveys



- ↘ Info on structure, variability, processes ...
 - Builds inventory on critical habitat conditions
 - Enables I.D. of wildlife habitat relationships
 - Aids grouping of stands into productivity classes
 - Enhances grouping of stands into risk classes
 - Allows development of management targets for
 - ✓ Biological diversity maintenance
 - ✓ Managing potential fire hazard
 - ✓ Silvicultural treatments



Vegetation & LOD Surveys

- ✦ Surveys are best stratified for efficiency
 - Coarse woody litter (Large Organic Detritus)
 - ✓ Use transects (line intersect) sometimes fixed-area
 - Groundstory component
 - ✓ Use fixed-area sometimes transects (point transect)
 - Understory component
 - ✓ Use transects (point transect) sometimes fixed-area
 - Overstory component
 - ✓ Use fixed-area plots sometimes variable-area



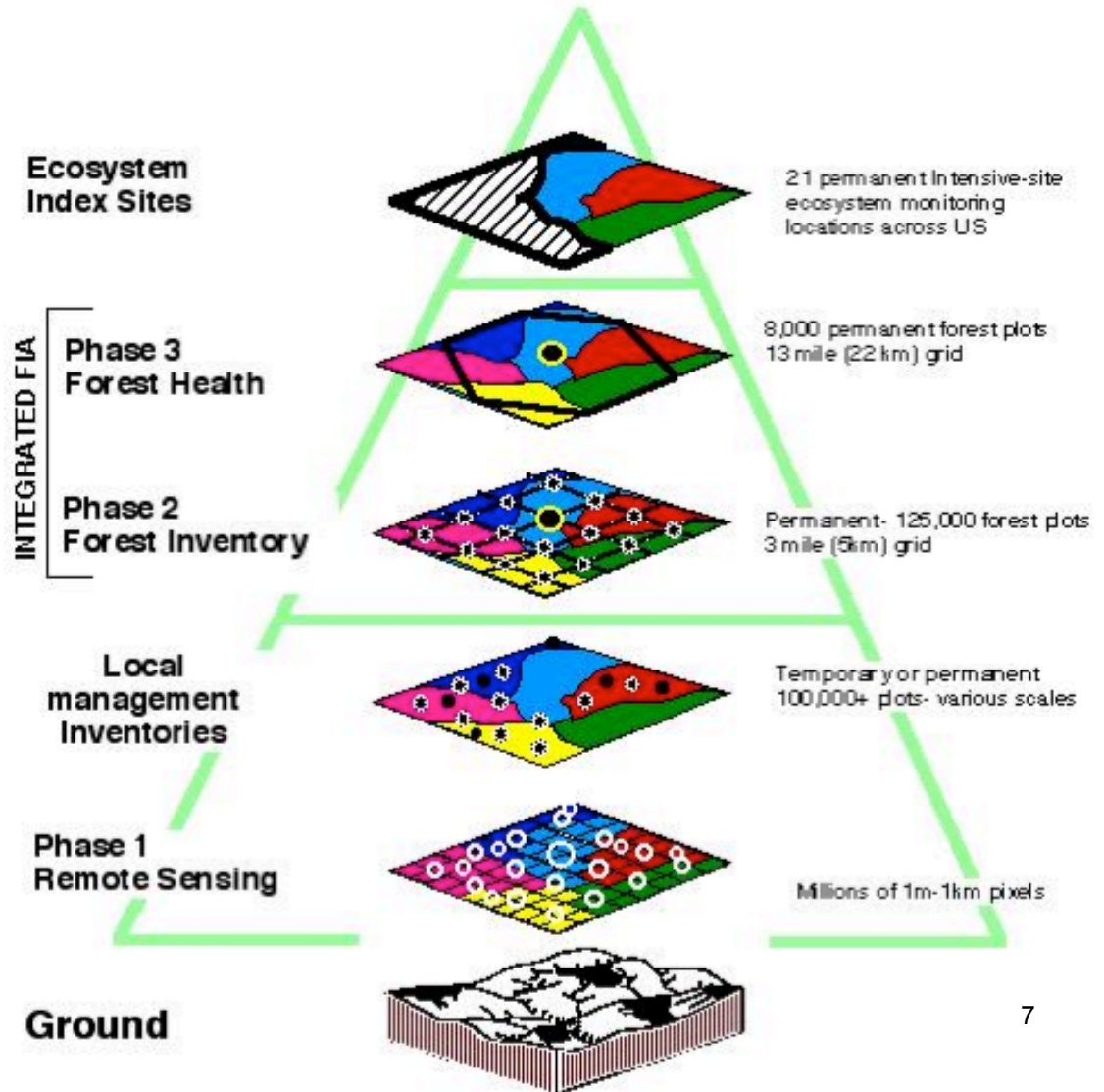
Vegetation & LOD Example Survey

- ✚ Forest Inventory & Analysis (FIA)
 - In continuous operation since 1930
 - Mission
 - ✓ "make and keep current a comprehensive inventory and analysis of the present and prospective conditions of and requirements for the renewable resources of the forest and rangelands of the US."
 - Collects, analyzes, and reports information on the status and trends of America's forests: how much forest exists, where it exists, who owns it, and how it is changing

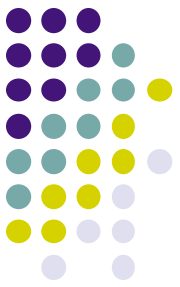
Integrated Monitoring Framework



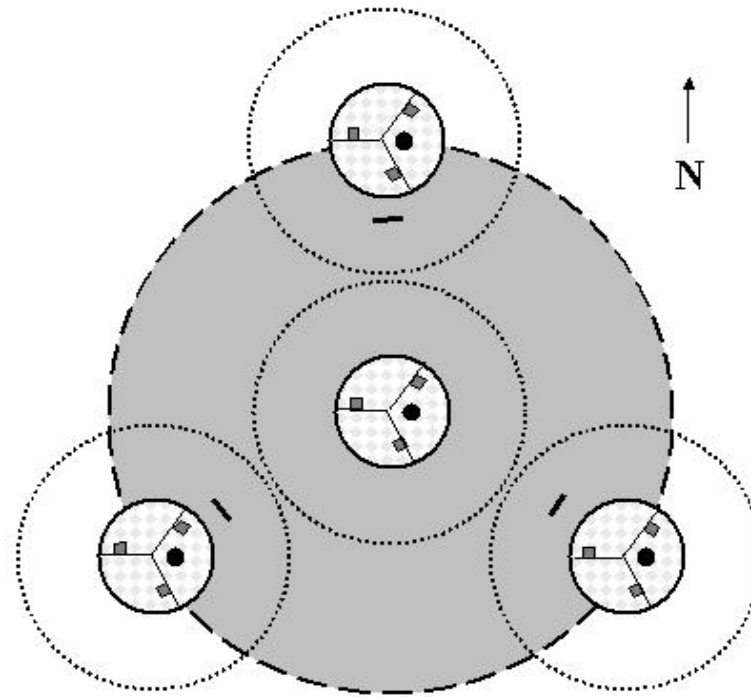
USDA Forest Service Integrated Monitoring Framework



Integrated FIA - Sample Units



Phase 2/Phase 3 Plot Design

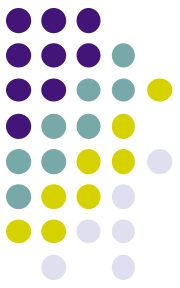


	Subplot	24.0 ft (7.32 m) radius
	Microplot	6.8 ft (2.07 m) radius
	Annular plot	58.9 ft (17.95 m) radius
	Lichens plot	120.0 ft (36.60 m) radius
	Vegetation plot	1.0 m ² area
	Soil Sampling	(point sample)
	Down Woody Debris	24.0 ft (7.32 m) transects

Vegetation & LOD Example Survey

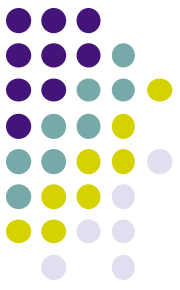


- ✦ Forest Inventory & Analysis (FIA)
 - Information collected on
 - ✓ Soil quality
 - ✓ Down woody debris
 - ✓ Vegetation structure and diversity
 - ✓ Crown condition
 - ✓ Tree mortality
 - ✓ Tree growth
 - ✓ Lichen communities
 - ✓ Vegetation health



Summary Remarks

- Multiresource surveys include many important biotic and abiotic attributes
- Best to use stratified sampling schemes
 - Increases efficiency
 - Small plots for small things
 - More plots for more variable pop' ns
- Examples
 - Forest Inventory & Analysis (FIA)
 - Pack Forest Resource Inventory (PFRI)
 - Continuous Forest Inventory (CFI)



Summary Remarks

- ✓ Sound data enables sound stand, forest, and landscape management decisions
- ✓ *Multiresource* Inventories should include consideration of
 - data to be collected
 - financial support needed
 - logistical support required
 - compilation procedures
- ✓ Further Understanding
 - Chpt. 12 in Husch, et al. 2003. Forest Mensuration. John Wiley & Sons, Inc. New York.