

Stand Dynamics

- Objectives
 - Stand Dynamics
 - Ecology of stand dynamics to inform management
 - Thoughts and insights from the reading assignment

Stand Dynamics

- Ecological forestry (Franklin et al. 2007)
 - Emulation of natural disturbances and stand development processes as models for silvicultural practices
 - 3-legged stool of ecological forestry
 - Retention of biological legacies at harvest
 - Intermediate treatments to enhance stand heterogeneity (structural & compositional)
 - Allowance of appropriate recovery periods between harvests

Stand Dynamics

- Ecological forestry (Franklin et al. 2007)

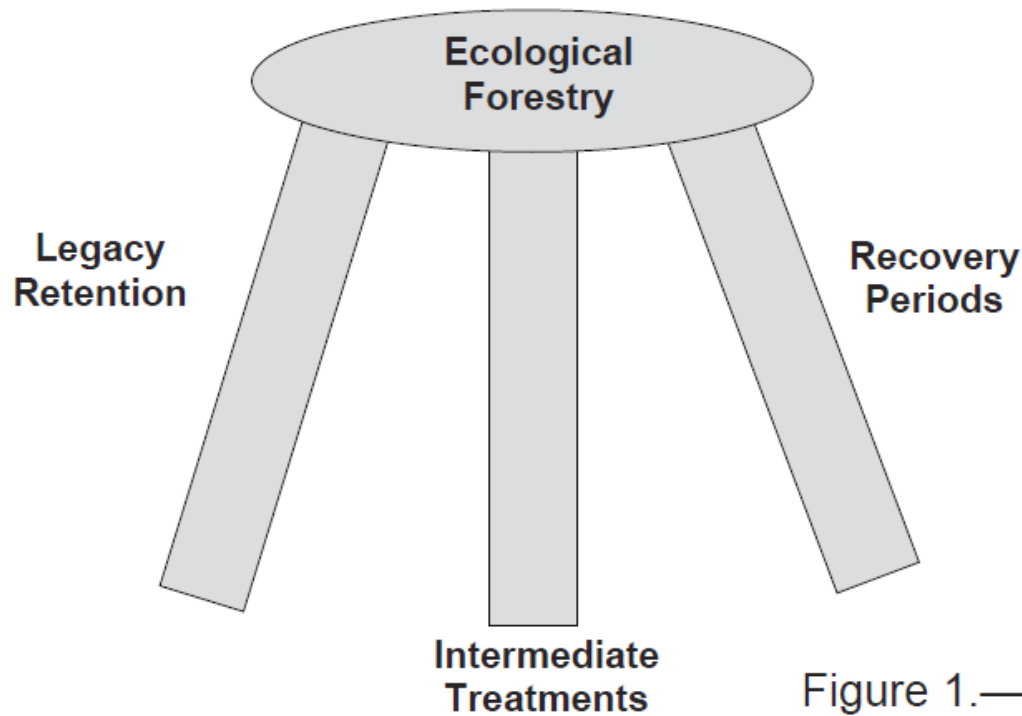
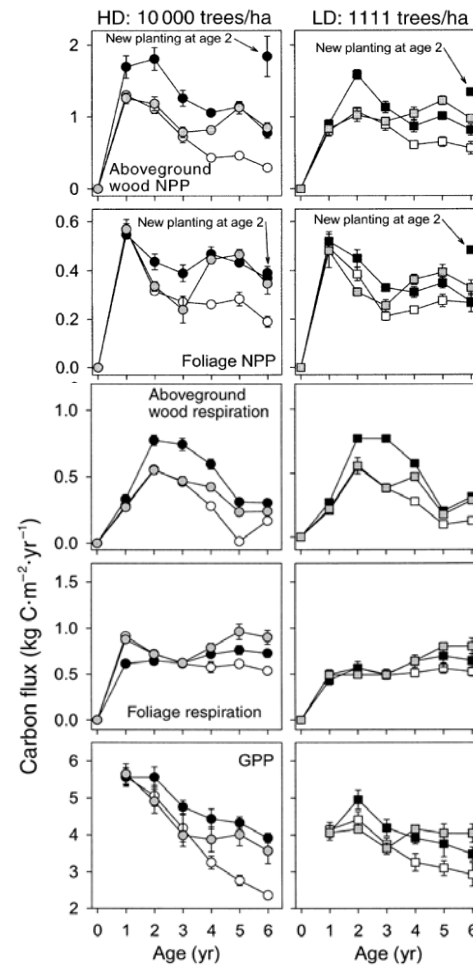
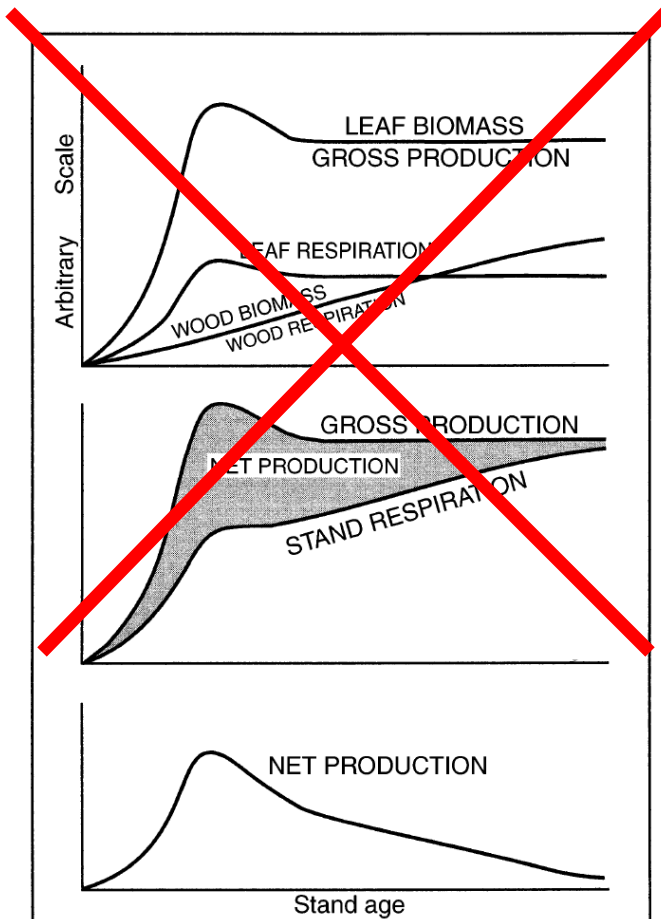


Figure 1.—The three-legged stool of ecological forestry.

Stand Dynamics

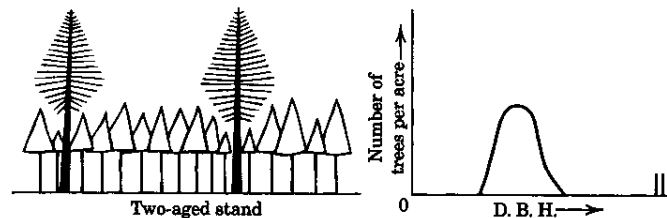
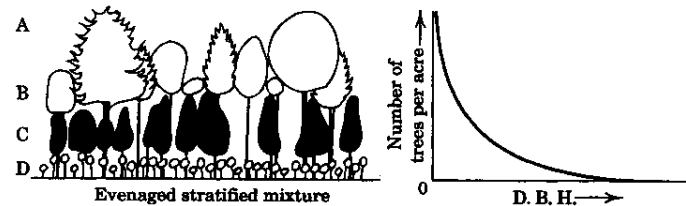
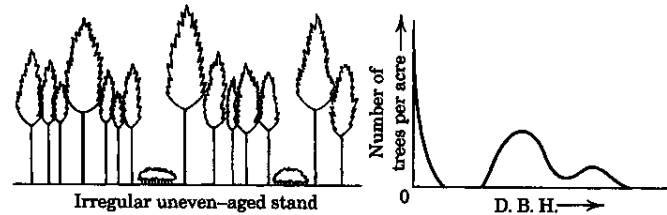
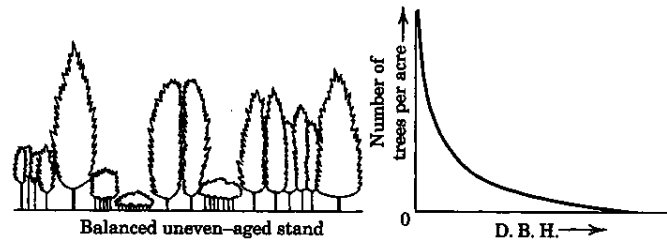
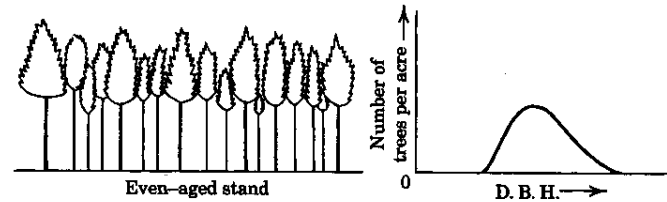
- Age-related decline in forest productivity



(Ryan et al. 2004)

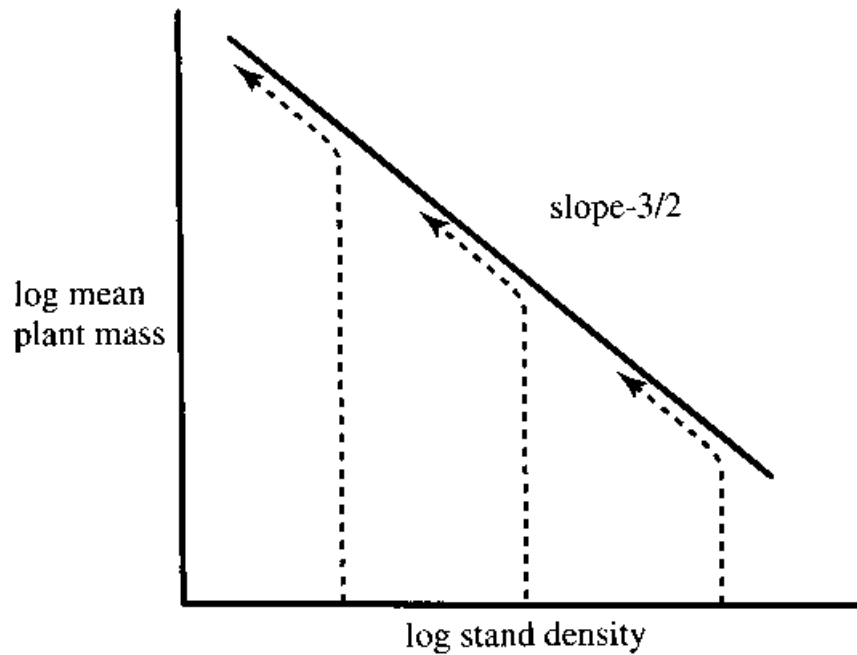
Stand Dynamics

- Age / Cohort Classes



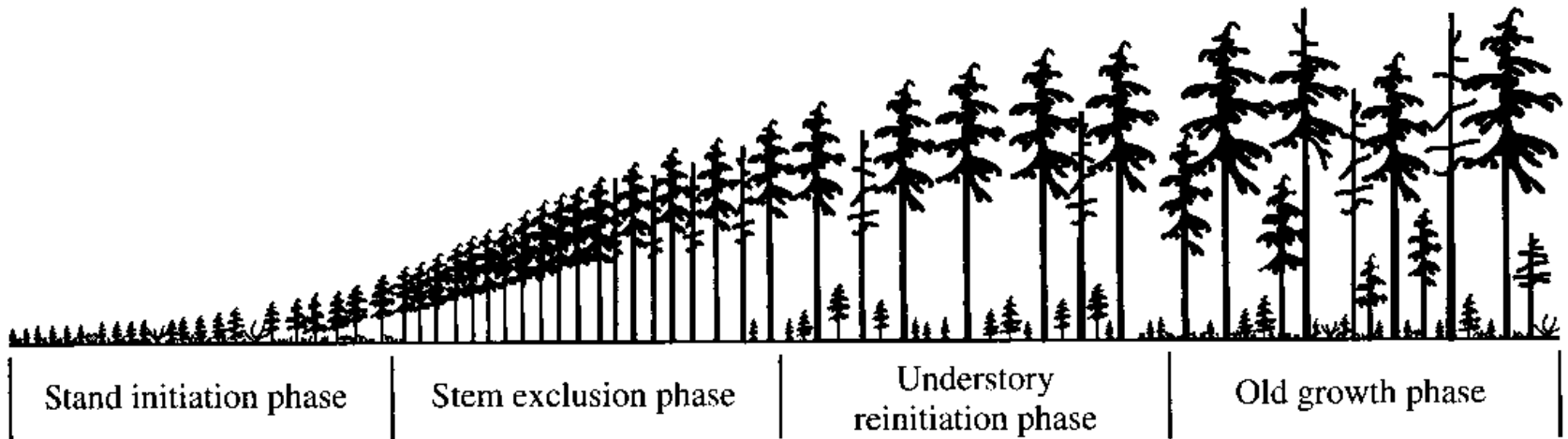
Stand Dynamics

- Self-thinning rule



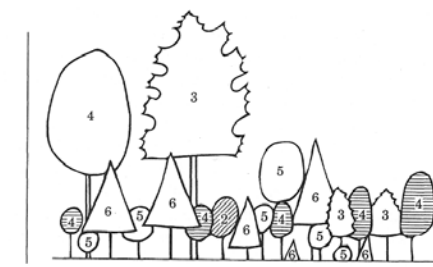
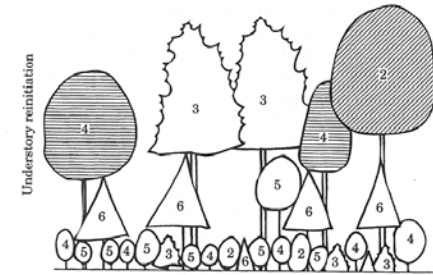
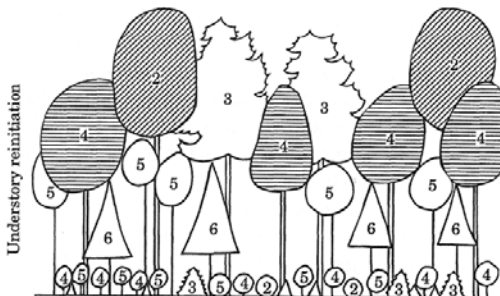
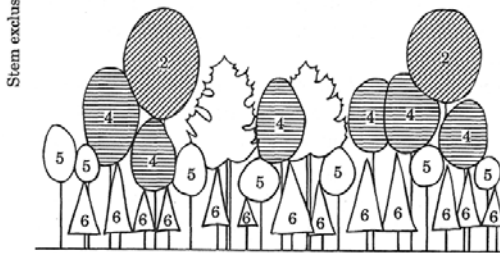
Stand Dynamics

- Stand Development
 - Pure, even-aged, single-cohort stand



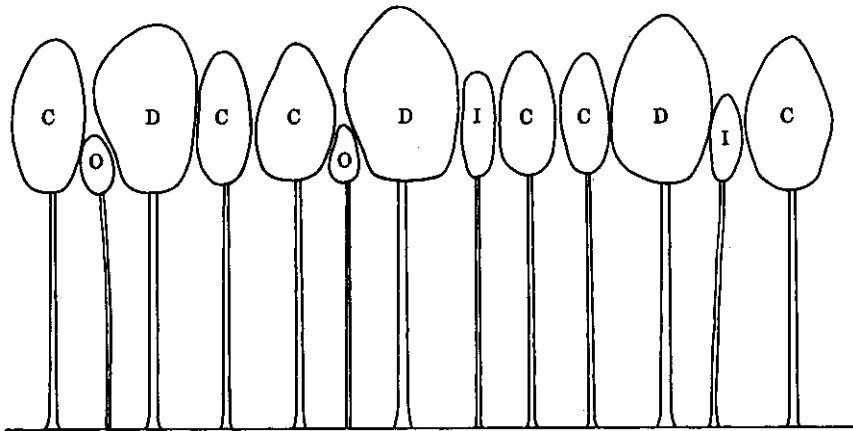
Stand Dynamics

- Stand Development
 - Mixed-species, even-aged, single-cohort stand

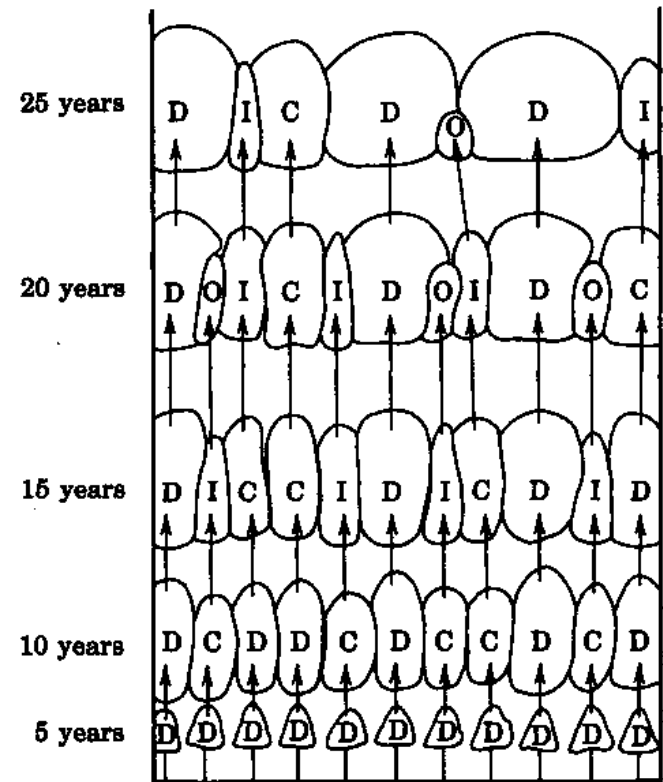


Stand Dynamics

- Crown Classes
 - Pure stands



Pure Stands

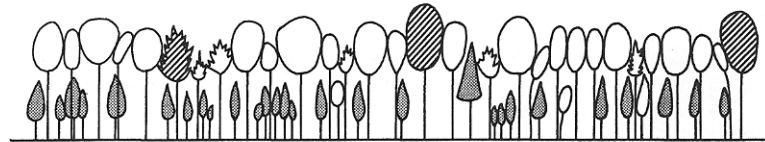


Stand Dynamics

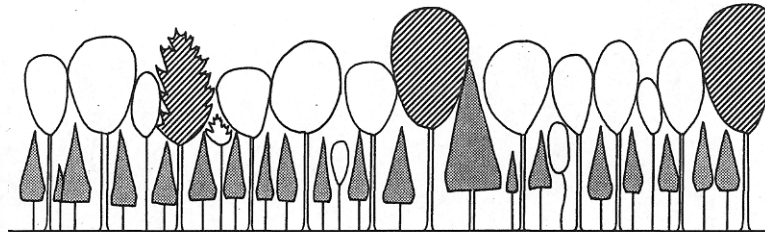
- Crown Classes
 - Mixed Stands

Shade Intolerant →

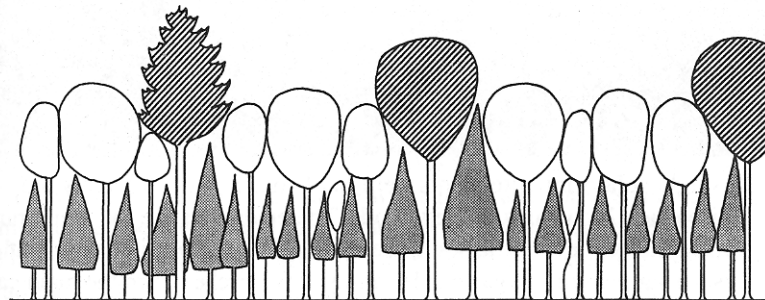
Shade Tolerant →



40 yrs



70 yrs



120 yrs