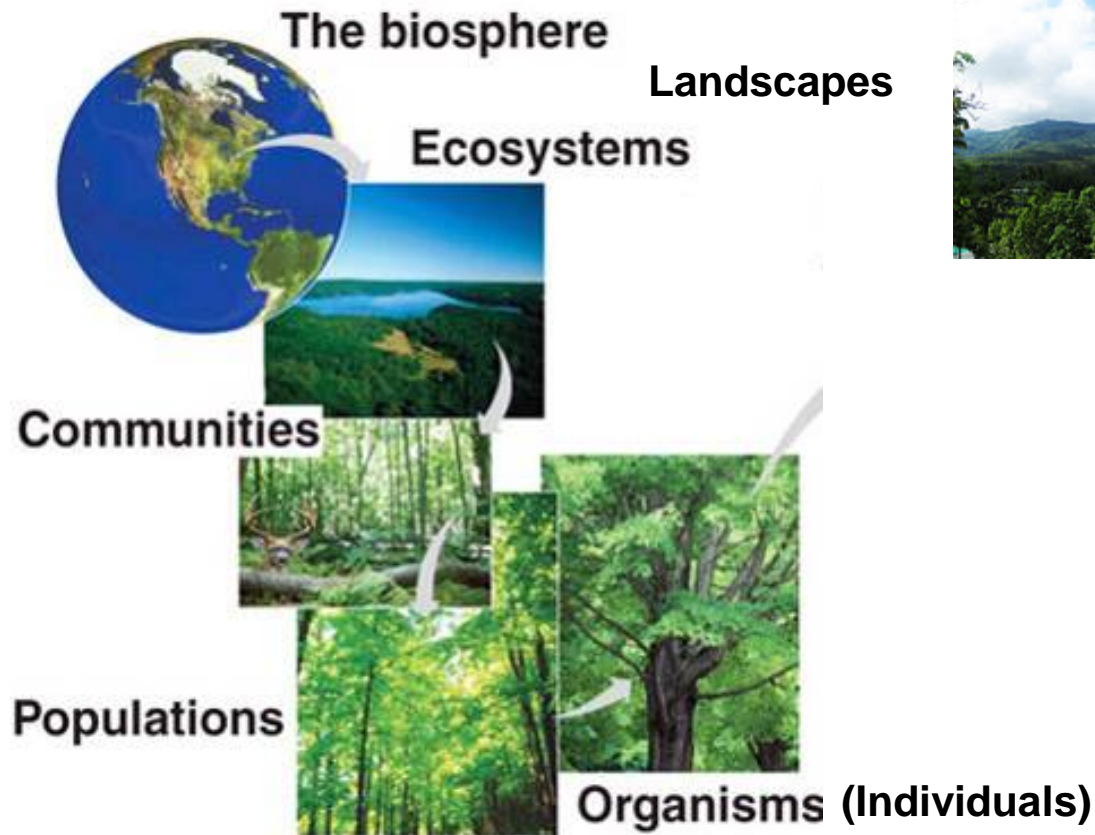


Forest Community Ecology

- Objectives
 - Overview of principles of Community Ecology
 - Importance to Forest Ecology & Management
 - *“Community ecology is important in forest resource management because in attempting to favor particular species, the manager must understand ... the variety of interspecific interactions that will determine, in large part, the success or failure of his or her activities.”* (Kimmins 2004)
 - **First:** take-home points, things you learned, etc. from reading assignment

Forest Community Ecology

- Ecological Hierarchy



Forest Community Ecology

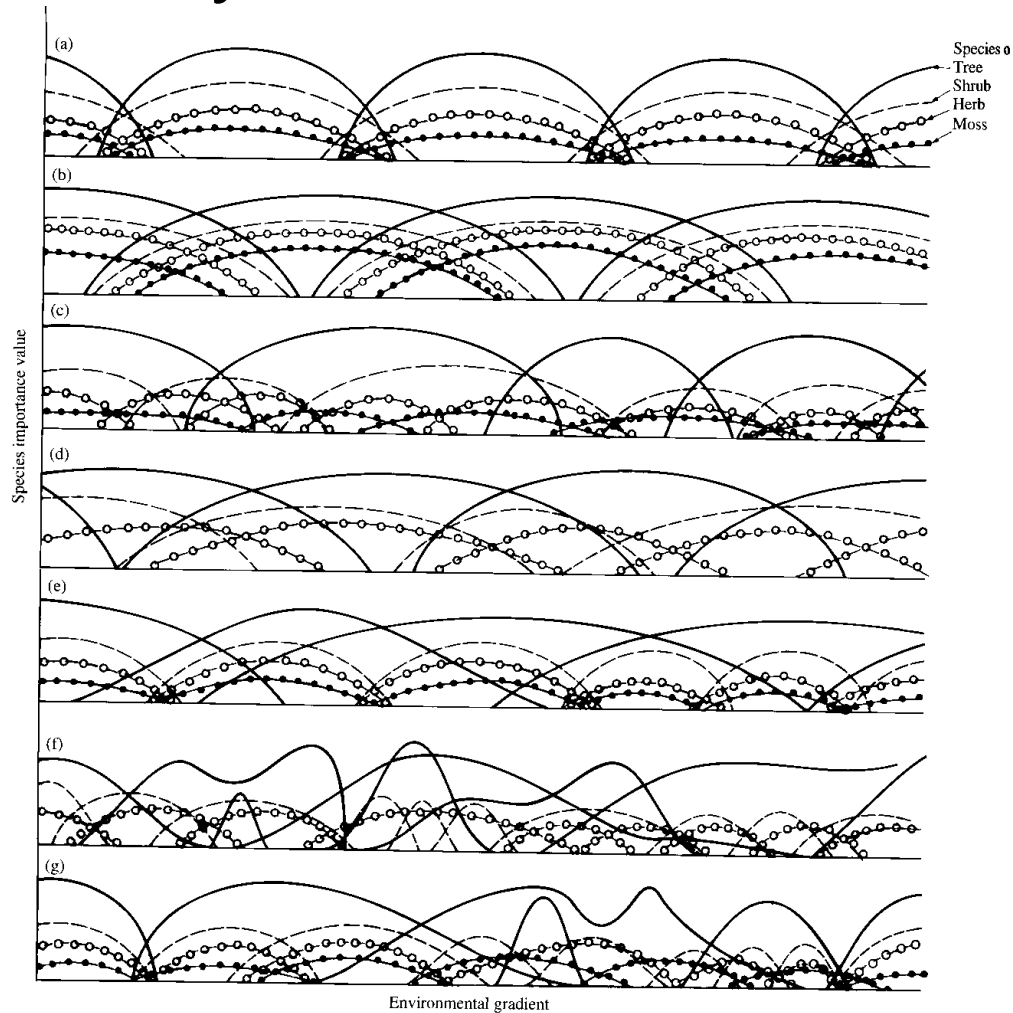
- Community
 - Collection of species/populations interacting directly and indirectly in the same place & time (i.e., a collection of associated populations)

***Acacia koa*
Community**



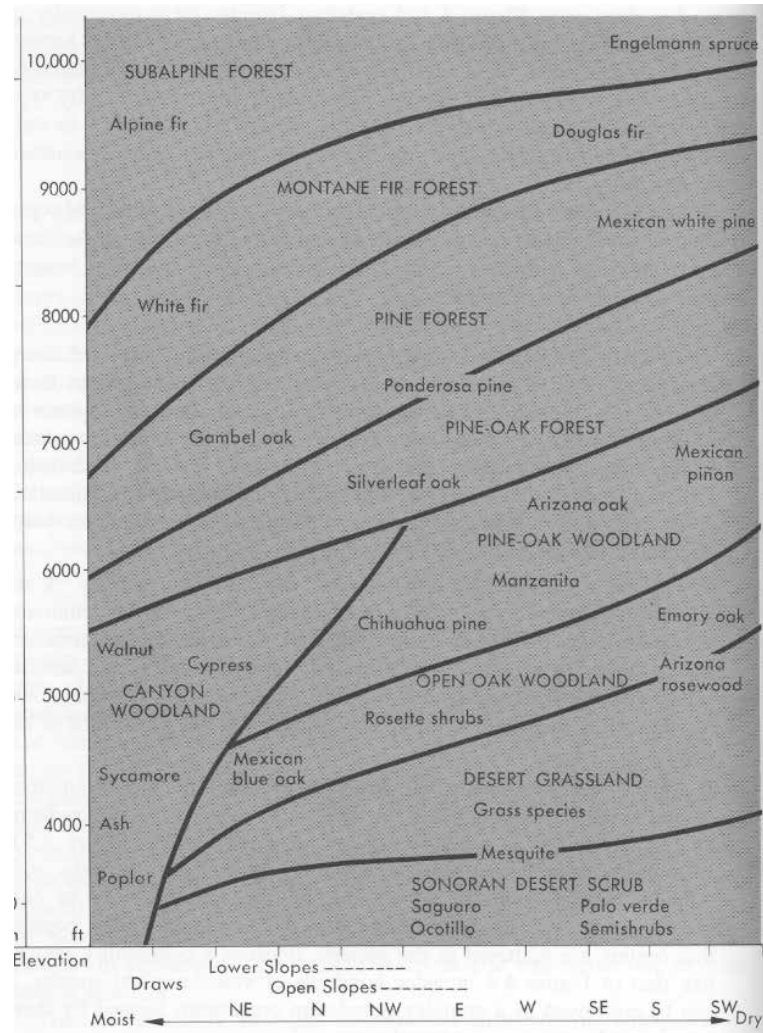
Forest Community Ecology

- Community – Environmental Gradients



Forest Community Ecology

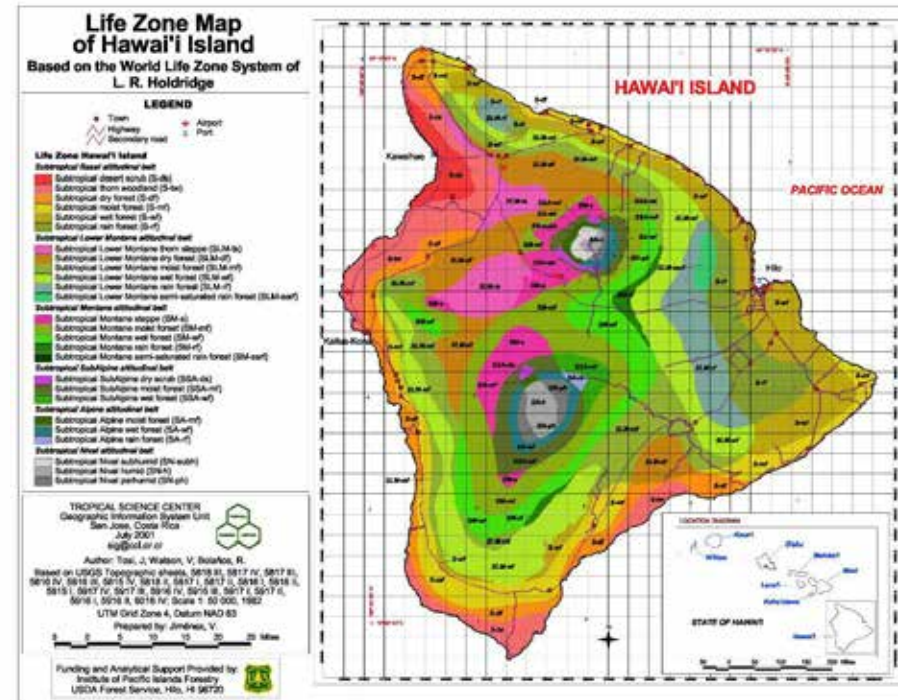
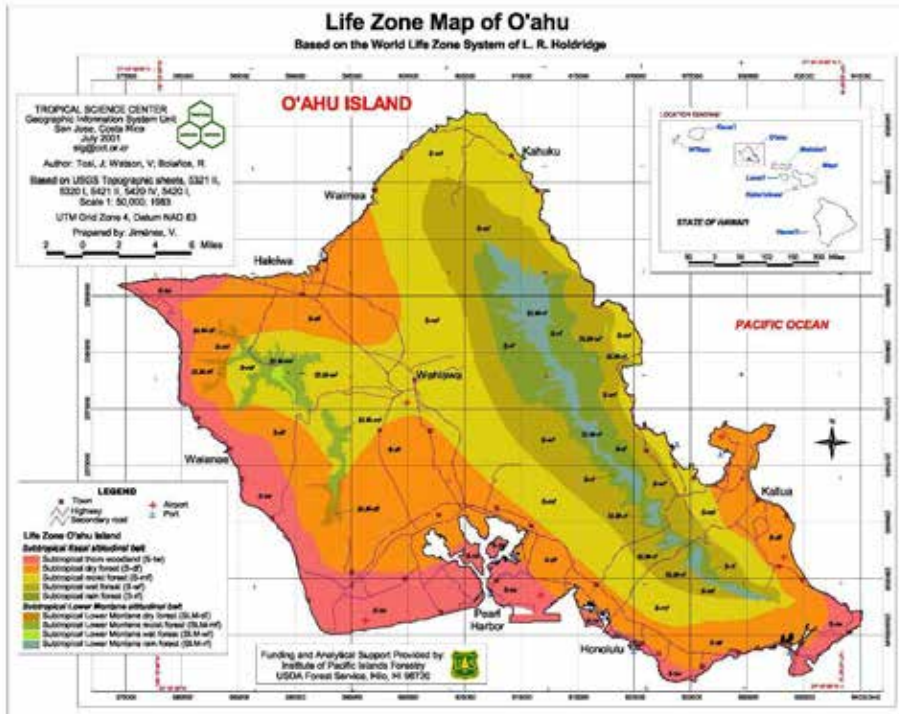
- Community – Environmental Gradients



(Whittaker 1975)

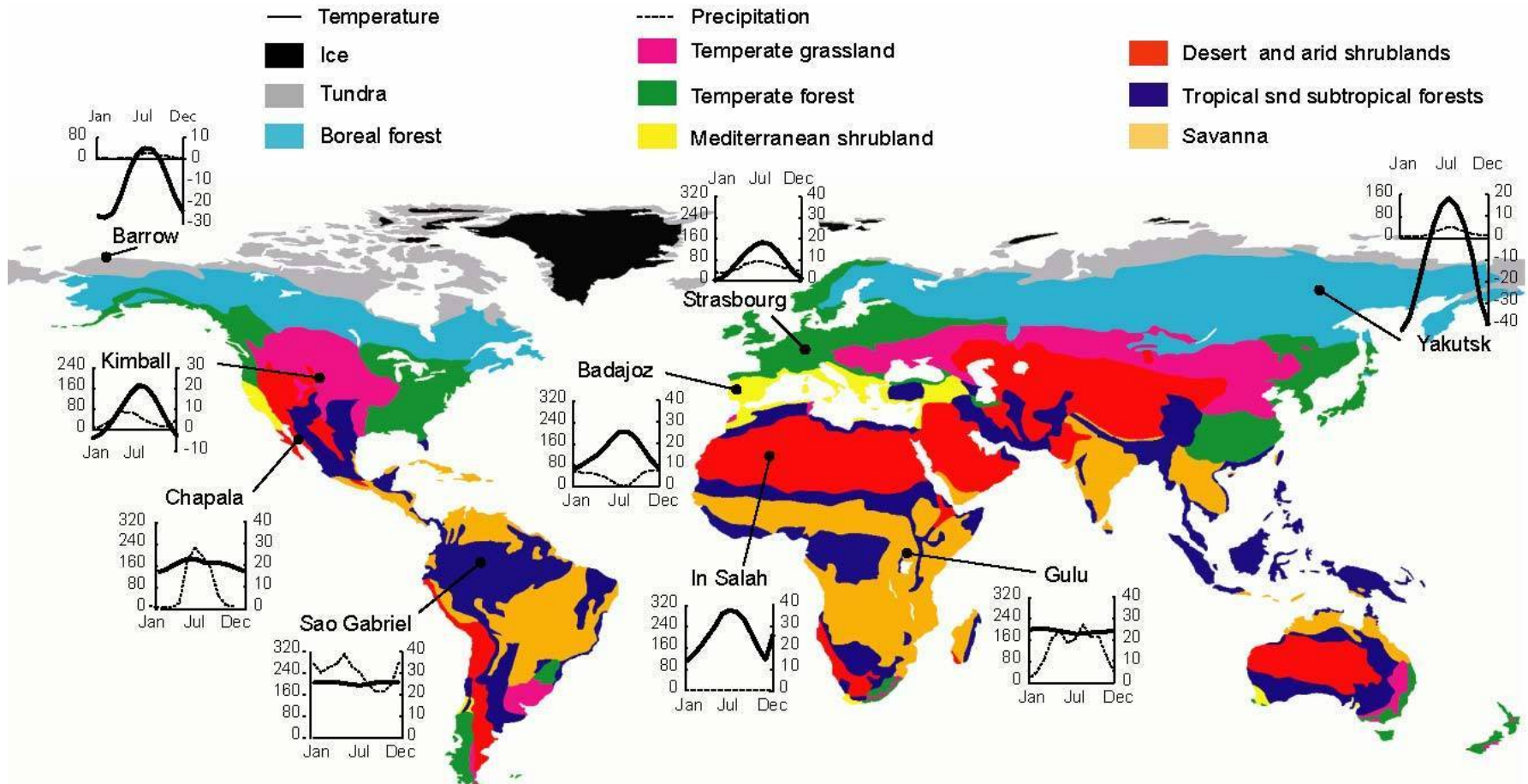
Forest Community Ecology

- Community – Spatial Variability



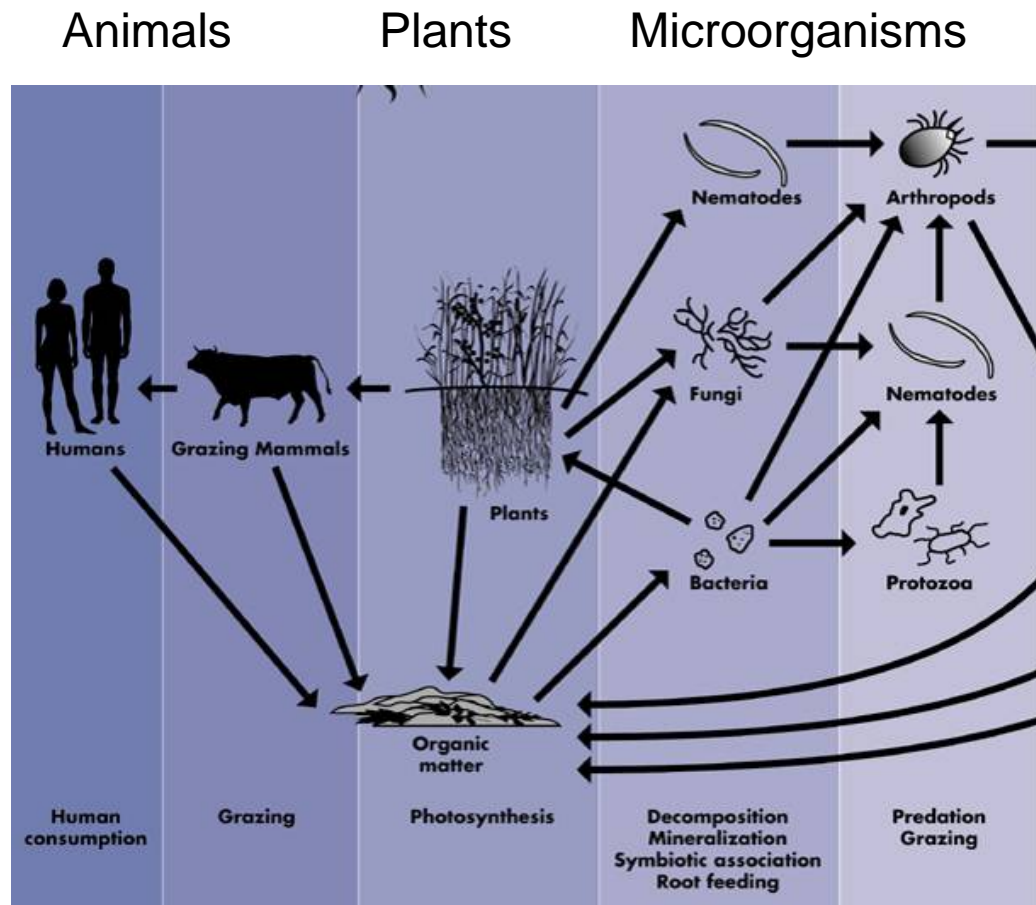
Forest Community Ecology

- Community – Spatial Variability



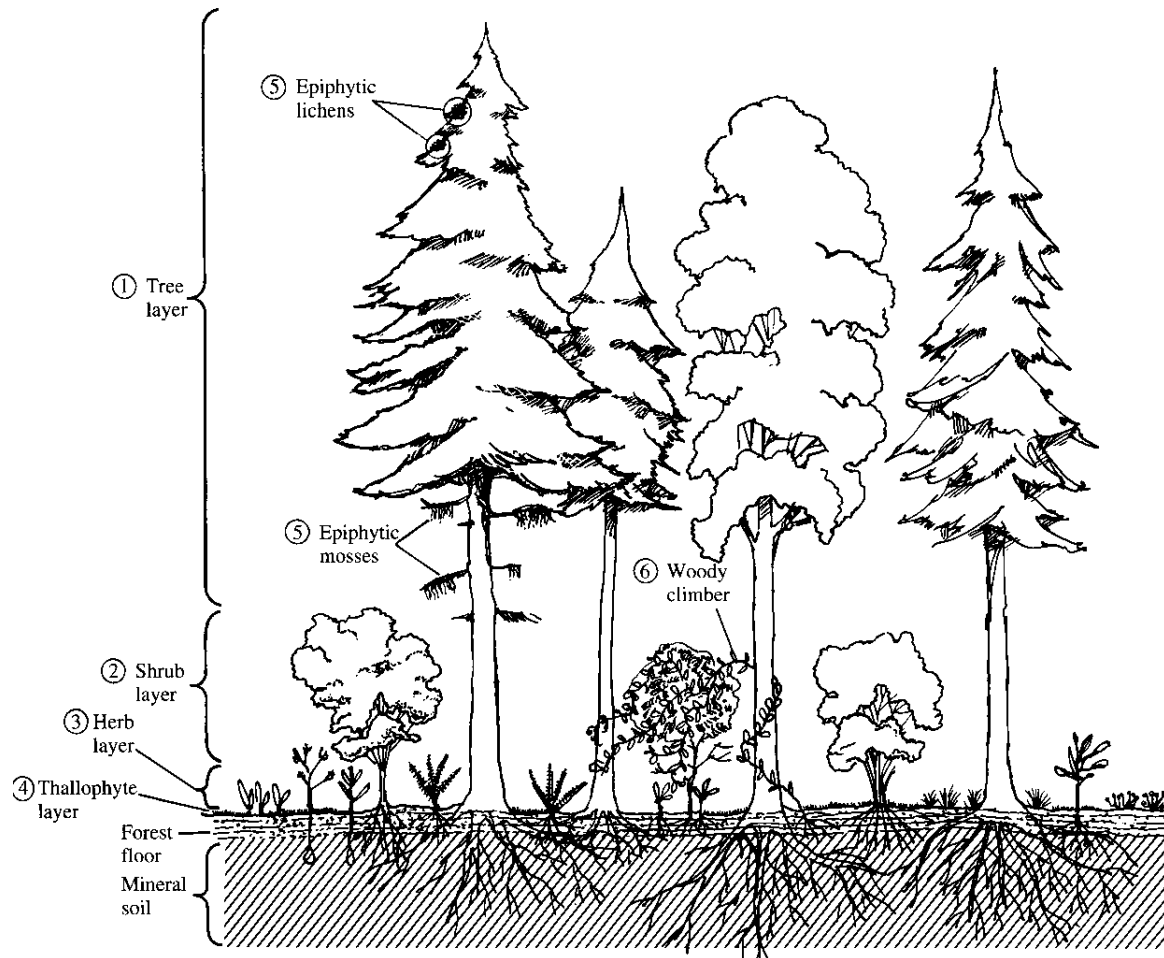
Forest Community Ecology

- Biotic Community



Forest Community Ecology

- Community Structure



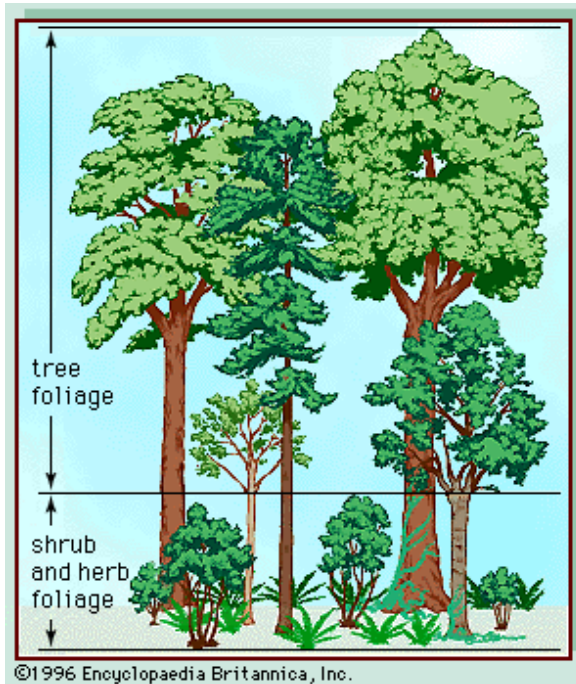
Forest Community Ecology

- Community Structure

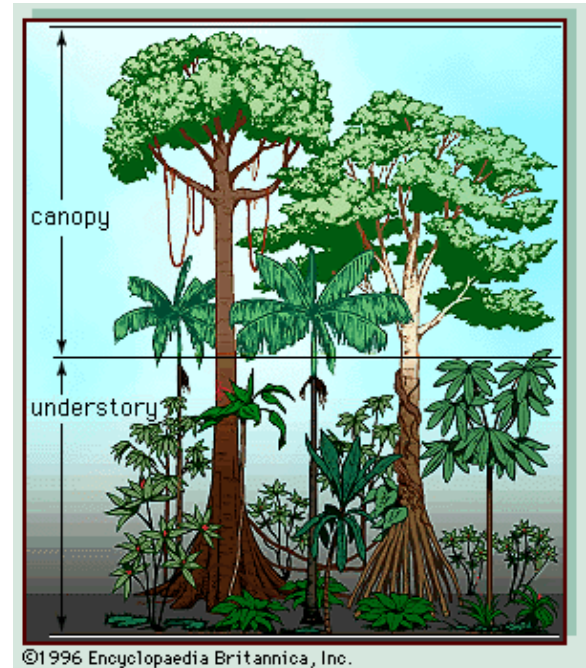
Boreal Forest



Temperate Forest



Tropical Forest



Forest Community Ecology

- Community – Interspecific Interactions

Table 15–2 Types of Interspecific Interactions

Category of Interaction	Type of Interaction	Effect on	
		Species A	Species B
Symbiosis	Mutualism	+	+
	Commensalism	+	0
Antagonism	Exploitation		
	physical	+	–
	parasitism	+	–
	predation	+	–
	Antibiosis, including allelopathy	+	–
	Competition	–	–

Forest Community Ecology

- Community - Mutualism

N-fixation
(root
nodule)



Mycorrhizae



Lichens

Forest Community Ecology

- Community - Commensalism



www.alamy.com - CXRPWE

Epiphytic Growth



Facilitation

Forest Community Ecology

- Community – Nonconsumptive Physical Exploitation



Forest Community Ecology

- Community – Consumptive Physical Exploitation

Parasitism



Herbivory

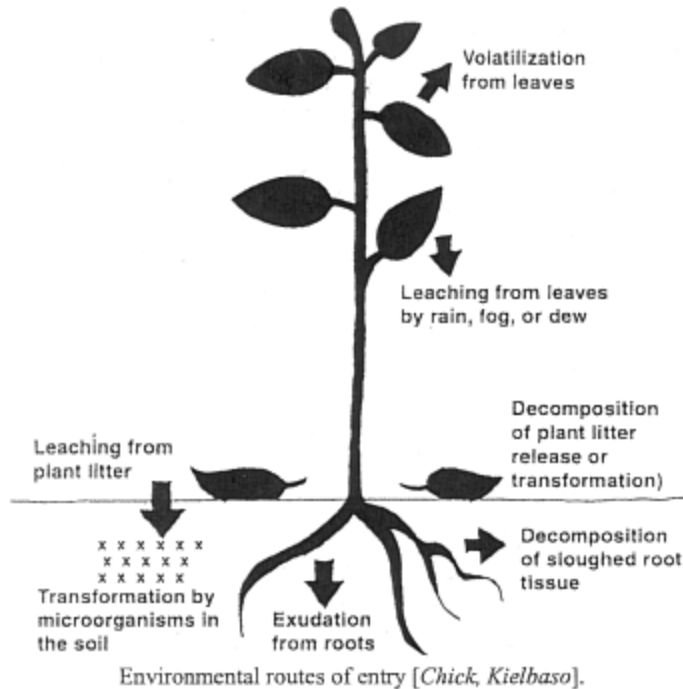


Predation



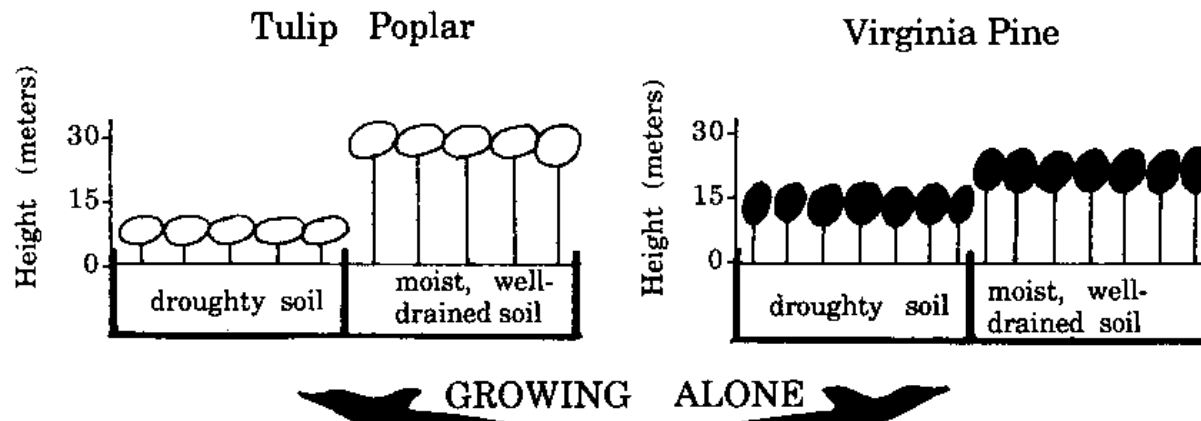
Forest Community Ecology

- Community – Antibiosis (Allelopathy)



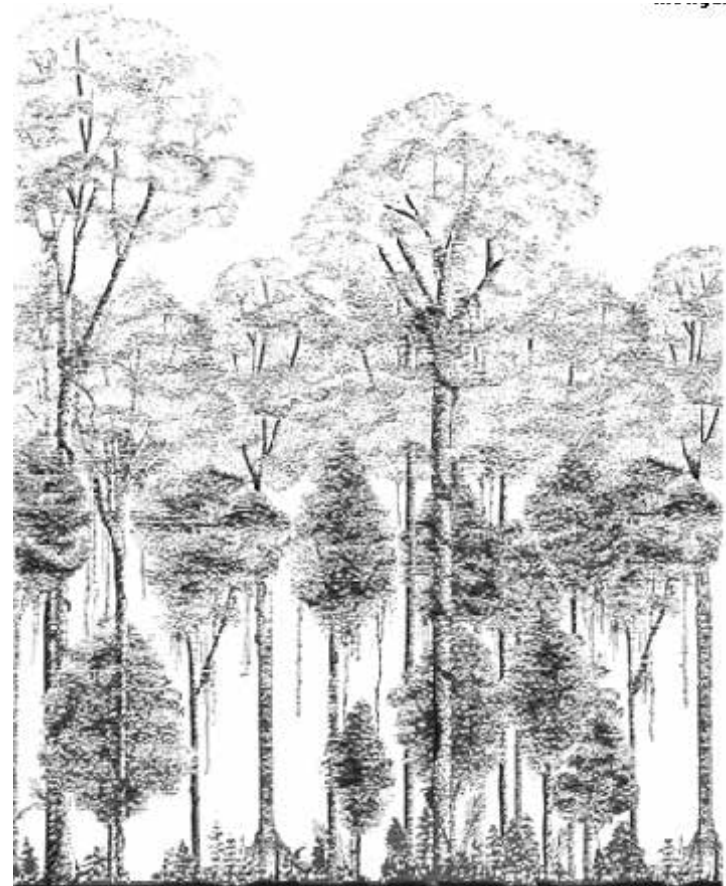
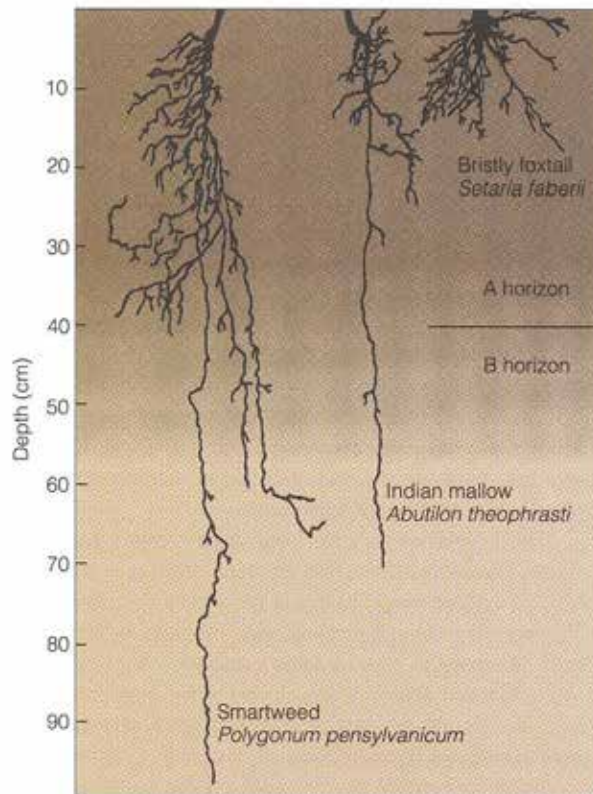
Forest Community Ecology

- Community - Competition



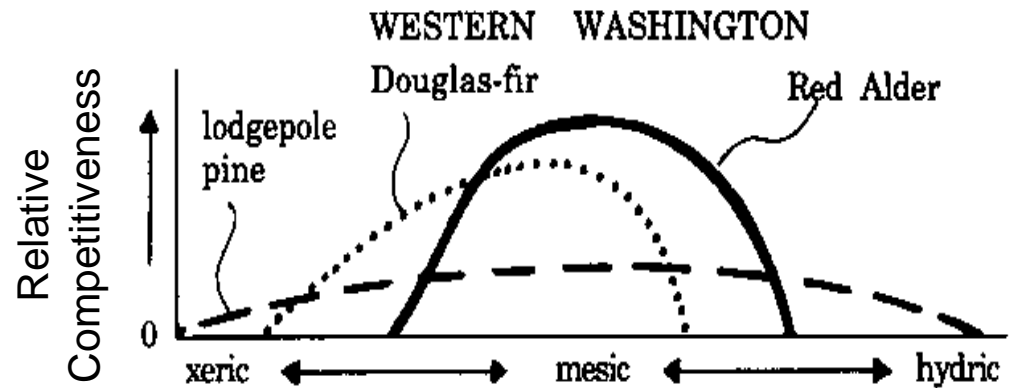
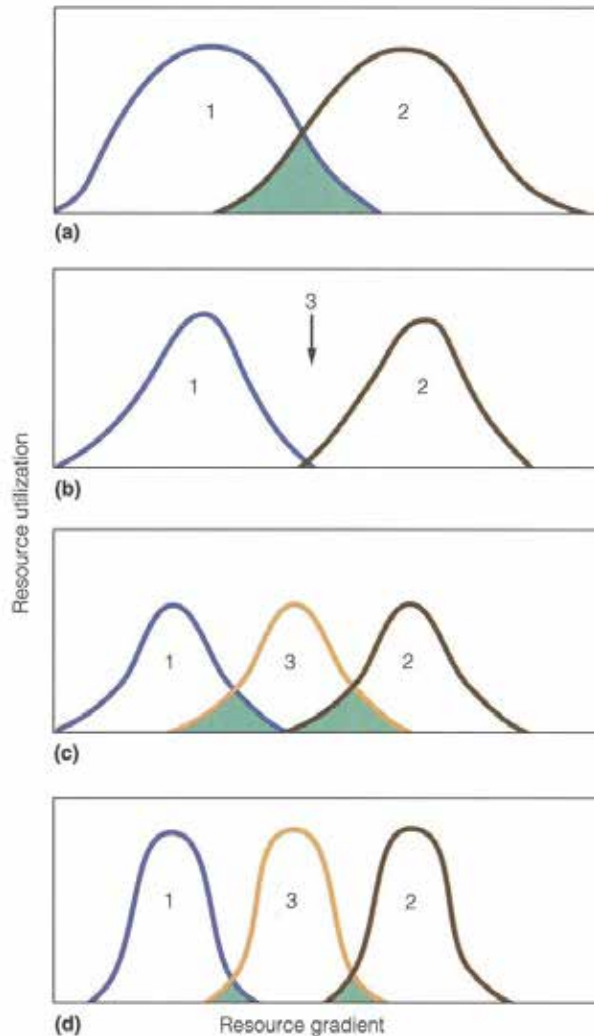
Forest Community Ecology

- Community – Resource Partitioning



Forest Community Ecology

- Community - Ecological Niche



Forest Community Ecology

- Community - Biodiversity
 - Genetic diversity within a species
 - Taxonomic diversity
 - Structural Diversity
 - Functional/Life History Diversity
 - Temporal Diversity
 - Alpha, beta and gamma diversity
 - Stand, local, and regional diversity

Forest Community Ecology

- Community Ecology & Forest Management
 - Foresters manage the structure & function of forest ecosystems (biotic & abiotic)
 - Community ecology, along with population ecology, largely informs management of the biotic component
 - Description, classification, & identification of forest communities
 - Interspecific interactions
 - Positive and Negative
 - Resource Partitioning
 - Ecological niche
 - Biodiversity
 - Biodiversity and Ecosystem Function