**APES Study Guide**

**Unit 3 – The Nature of Ecology**

In this unit we see how land use, conservation, and forest management help keep a healthy worldwide biodiversity, and how our modern conservation movement came to be.

# Reading

Miller, *Living in the Environment*, 15th Edition, Chapter 3, 4 & 7.

## Major Lab Assignments

* Gather Your Food
* Sierra Nevada Food Webs
* Video – *Cane Toads*
* Climatograms
* Island Population Activity

## Vocabulary (A bunch of terms. As in: A lot.)

Chapter 3

* organism
* species
* range/distribution
* genetic diversity
* biosphere
* ecology
* population
* genetic diversity
* habitat
* biosphere
* community
* ecosystem
* atmosphere
* troposphere
* stratosphere
* hydrosphere
* biome
* abiotic factors
* biotic factors
* aquatic life zones
* natural greenhouse effect
* ecotone
* range of tolerance
* tolerance limits
* limiting factor
* limiting factor principle
* metabolism
* producers (autotrophs)
* photosynthesis
* chemosynthesis
* consumers (heterotrophs)
* herbivores
* primary consumers
* carnivores
* secondary consumers
* tertiary consumers
* omnivores
* scavengers
* detritivores
* detritus
* detritus feeders
* decomposers
* aerobic respiration
* anaerobic respiration (fermentation)
* biodiversity
* HIPPO
* species diversity
* ecological diversity
* functional diversity
* food chain
* trophic level
* food web
* biomass
* ecological efficiency
* pyramid of energy flow
* pyramid of biomass
* gross primary productivity
* net primary productivity
* soil
* leaching
* infiltration
* soil texture
* nutrient
* water cycle
* evaporation
* transpiration
* condensation
* precipitation
* carbon cycle
* nitrogen cycle
* nitrogen fixation
* nitrification
* assimilation
* denitrification
* phosphorus cycle

Chapter 4 (20 terms)

* natural selection
* biological evolution
* mutation
* adaptation
* fundamental niche
* realized niche
* generalist species
* specialist species
* ecological niche (niche)
* speciation
* geographic isolation
* reproductive isolation
* extinction
* endemic species
* background extinction
* mass extinction
* mass depletion
* artificial selection
* genetic engineering
* genetically modified organisms (GMO)

Chapter 7 (32 terms)

* edge effects
* fundamental niche
* realized niche
* generalist species
* specialist species
* native species
* nonnative species
* invasive species
* exotic species
* alien species
* indicator species
* keystone species
* interspecific competition
* predation
* symbiosis
* parasitism
* mutualism
* commensalism
* interference competition
* exploitation competition
* competitive exclusion
* resource partitioning
* character displacement
* predator-prey relationship
* ecological succession
* primary succession
* secondary succession
* pioneer species
* early successional plant species
* mid-successional plant species
* late successional plant species
* disturbance
* inertia
* persistence
* constancy
* resilience

Unit Objectives:

1. Compare the flow of energy and the flow of matter through an ecosystem.
2. Know how to calculate gross primary productivity and net primary productivity
3. List and distinguish between the different biotic and abiotic components of an ecosystem.
4. Distinguish between food chains and food webs and how the laws of thermodynamics influence them.
5. Diagram and label several food webs.
6. Describe the carbon, nitrogen, phosphorus, sulfur, and water cycles.
7. Discuss the importance of biodiversity
8. Distinguish between different types of biome/habitat soil type.
9. Describe how scientists account for the development of life on earth.
10. Distinguish between natural and artificial selection.
11. Describe how an ecological niche helps a population adapt to changing environmental conditions.
12. Discuss how extinction of species and formation of new species affects biodiversity.
13. Distinguish what determines the number of species in a community
14. Be able to classify speicies according to their roles in a community
15. Describe species interaction.
16. Describe how communities respond to changes in conditions.
17. Describe how biodiversity increases the stability and sustainability of a community.

Chapter 3 Vocabulary Quiz \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chapter 4 & 7 Vocabulary Quiz \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 3 Test \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_