

Chapter 8: Temperature as an Ecological Factor

Read: All sections, Except: Read the opening paragraphs of section 8.3 and the definition of Q_{10} . Otherwise, do not read 8.3, 8.5 or 8.6.

1. List and briefly describe (in a non-quantitative fashion) the factors that influence the energy budget of a ground-based organism (such as tree seedling or small mammal).
2. Describe how two objects exposed to the same amount of solar radiation can be different temperatures.
3. Describe the impact of topography on energy budgets.
4. Describe the effect of moisture on the temperature of soils.
5. Describe why weather reports and average temperatures presented in atlases are relatively meaningless from an ecological standpoint.
6. Identify two principal causes of temperature-related injuries to plants and give an example of each.
7. Describe several physiological and morphological adaptations that plants have made to extreme temperatures.
8. List several reasons why foresters and other resource managers should understand the effects of temperature on the organisms they manage.

Chapter 9: Wind: Ecological Effects of Atmospheric Movements

Read: All Sections, EXCEPT skip 9.2, 9.4

1. Briefly describe at least three effects of wind on the following: plant propagation, plant physiology, and plant morphology (how plants look). Give an example of each.
2. Describe two negative and two positive effects that wind can have on entire ecosystems.
3. Briefly describe two reasons that foresters (and others who manage forested landscapes) should understand the relationship between forests and wind.

Chapter 11: Soil: The Least Renewable Physical Component Of The Ecosystem

Read: All sections (don't worry about specifics of reactions in 11.4, very briefly skim 11.6, 11.7, except 10.7 A & B, 10.8 B)

Purpose: To help you understand what soil is, how it develops, how it affects plant and animal communities, and how it's affected by human activities.

Objectives: You should be able to:

1. Define soil in terms your parents would be able to understand (distinguish between soil and dirt).
2. Define and briefly discuss the following physical properties of soils: texture (3 major components), structure (terms commonly used to describe), porosity (what it is and why it's important), consistency, bulk density, aeration (why important), and temperature (why important).
3. Given two identical plants growing on two soils of different texture that have both received the same amount of water: describe how one plant may wilt when the other doesn't (hint: be able to interpret Figure 11.4 A).
4. Explain the importance of soil organic matter to the forest ecosystem.
5. Briefly describe the importance of small soil organisms to the health and productivity of forest ecosystems.
6. List and describe the importance of five major factors that influence soil development.
7. Describe three major reasons why soils are important to plants.
8. Explain to a high school forestry class why soil conservation is vital to the long-term productivity of the forest.