

Plant Adaptations (2): Thermal, Moisture, and Nutrient Environments

I. Plants and the Thermal Environment

A. Thermal Energy Balance

- 1) Physical Environment
- 2) Leaf Size and Shape

B. Thermal Effects on Photosynthesis

- 1) C₃ versus C₄ Plants

C. Temperature and Plant Growth

- 1) Degree Days

D. Extreme Temperatures

E. Processes Other than Survival and Growth

- 1) Reproduction and Germination

II. Plant Response to Water

A. Water Uptake and the Soil-Plant-Atmosphere Continuum

B. Example of Responses

C. Plant Responses to Flooding

- 1) Aerenchyma
- 2) Pneumatophores

D. Plant Adaptations to Salinity

- 1) Halophytes

III. Plants and Nutrients

A. Macronutrients and Micronutrients

- 1) Review of Elemental Nutrients

B. Plant Adaptations to Variations in Nutrient Availability

- 1) Root Growth versus Shoot Growth
- 2) Leaf Longevity
- 3) Influence on Nutrient Availability

D. Calcicoles, Califuges, and Neutrophilus Plants

E. Plants of Serpentine and Toxic Soils

- 1) Endemics
- 2) Ecotypes