# North Carolina Envirothon Forestry Practice Test (Sample)

## Study Guide


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# Questions

1. **Are Balsam Woody Adelgids classified as borers or tip feeders?**

   **A. Borers**

   **B. Tip feeders**

   **C. Leaf miners**

   **D. Saprophytes**

2. **What is commonly measured using a hypsometer in forestry?**

   **A. Tree age**

   **B. Tree height**

   **C. Tree species**

   **D. Tree biomass**

3. **Where does Red Heart/Red Ring Rot primarily attack trees?**

   **A. The bark of hardwood trees**

   **B. The roots of conifer trees**

   **C. The heartwood of conifer trees**

   **D. The leaves of deciduous trees**

4. **Who established the first school of Forestry in the United States?**

   **A. Dr. John Muir**

   **B. Dr. Carl Schenck**

   **C. Dr. Gifford Pinchot**

   **D. Dr. Aldo Leopold**

5. **What typically happens to leaves of trees affected by Oak Wilt?**

   **A. They become bright green**

   **B. They develop black spots**

   **C. They wilt from the edge inward**

   **D. They fall off prematurely**

**6. Is Chestnut Blight considered a native disease?**

- **A. Yes**
- **B. No**
- **C. Only in certain regions**
- **D. It is debatable**

**7. Is Longleaf Pine considered serotinus?**

- **A. Yes**
- **B. No**
- **C. Only at certain altitudes**
- **D. Only during winter**

**8. What does Oak Wilt primarily cause in trees?**

- **A. Root rot**
- **B. Leaf wilting from the margin**
- **C. Branch dieback**
- **D. Growth stunting**

**9. Which tree type primarily grows in colder climates?**

- **A. Deciduous trees**
- **B. Coniferous trees**
- **C. Tropical hardwoods**
- **D. Fruit-bearing trees**

**10. What does the Clarke McNary Law provide for in addition to nursery stock aid?**

- **A. Funding for forest education programs**
- **B. Further aid for production**
- **C. Regulatory controls on logging**
- **D. Land acquisition for national parks**

# Answers

1. B
2. B
3. C
4. B
5. C
6. B
7. A
8. B
9. B
10. B

# Explanations

## 1. Are Balsam Woody Adelgids classified as borers or tip feeders?

**A. Borers**

**B. Tip feeders**

**C. Leaf miners**

**D. Saprophytes**

**Balsam Woody Adelgids are classified as tip feeders. This classification is based on their feeding behavior, where these pests primarily feed on the tender new growth, or tips, of balsam fir and other conifer species. By consuming the fluid from the new shoots, they cause stunted growth and can lead to significant damage over time. In contrast, borers are insects that typically tunnel into the wood of the plant, creating serious structural damage. Leaf miners are another type of pest that feed between the layers of leaves, creating distinct patterns but do not affect the tips of the plants directly. Saprophytes are organisms that feed on decaying organic matter and do not impact living plants in a manner similar to what the adelgids do. Understanding this classification helps in pest management and in recognizing the specific threats that different insects pose to forestry resources.**

## 2. What is commonly measured using a hypsometer in forestry?

**A. Tree age**

**B. Tree height**

**C. Tree species**

**D. Tree biomass**

**A hypsometer is specifically designed to measure the height of trees. This tool uses principles of trigonometry to calculate the vertical distance from the ground to the top of the tree based on angles measured from a set distance. Accurately determining tree height is essential in forestry for various purposes, such as timber volume estimation, forest management, and ecological assessments. Tree age is typically determined using methods like ring counting from a cross-section of the trunk, while tree species identification relies on observable characteristics such as leaf shape and bark texture. Tree biomass, which reflects the amount of organic material, usually requires more complex calculations and measurements rather than simple height readings. Hence, the most direct and common use of a hypsometer is for measuring tree height.**

## 3. Where does Red Heart/Red Ring Rot primarily attack trees?

**A. The bark of hardwood trees**

**B. The roots of conifer trees**

**C. The heartwood of conifer trees**

**D. The leaves of deciduous trees**

**Red Heart, also known as Red Ring Rot, primarily attacks the heartwood of conifer trees. This wood decay is caused by specific fungal pathogens that target the inner tissues, leading to significant deterioration. The heartwood, which is the central core of a tree that provides structural support, is particularly vulnerable because it is often less resistant to decay than the outer sapwood. When the heartwood is compromised, the integrity of the tree is threatened, resulting in weakness and susceptibility to breakage. This type of rot is especially concerning for forest health, timber production, and the overall longevity of coniferous species. Understanding the specific area where Red Heart/Red Ring Rot attacks allows foresters and land managers to implement better management practices and monitoring strategies to protect valuable forest resources.**

## 4. Who established the first school of Forestry in the United States?

**A. Dr. John Muir**

**B. Dr. Carl Schenck**

**C. Dr. Gifford Pinchot**

**D. Dr. Aldo Leopold**

**The establishment of the first school of forestry in the United States is attributed to Dr. Carl Schenck, who founded the Biltmore Forest School in 1898 in North Carolina. This school was instrumental in training the first generation of professional foresters in the country. Schenck's work was significant in promoting sustainable forestry practices and educating individuals about forest management, conservation, and the importance of forests to the ecosystem. The Biltmore Forest School served as a model for other forestry programs that followed, emphasizing the need for specialized education in managing forest resources. This pioneering effort laid the groundwork for forestry education and the professionalization of forestry in the United States, cementing Schenck's legacy in the field.**

## 5. What typically happens to leaves of trees affected by Oak Wilt?

**A. They become bright green**

**B. They develop black spots**

**C. They wilt from the edge inward**

**D. They fall off prematurely**

**The correct choice highlights a characteristic symptom of Oak Wilt, a serious fungal disease that affects oak trees. When trees are infected with Oak Wilt, the leaves exhibit a distinct wilting behavior where the leaf edges start to turn brown and wilt inward towards the center. This symptom is a result of the disruption of the tree's vascular system caused by the fungus, which impairs the tree's ability to transport water. The wilting pattern is often noticeable and can progress rapidly, indicating the severity of the infection and the tree's compromised health. While it is possible for infected trees to exhibit other symptoms such as premature leaf drop, the notable and distinctive wilting from the edges inward directly signifies the presence of the disease and is a key diagnostic feature. The other options don't accurately describe the specific impacts of Oak Wilt on leaf health or appearance as observed in infected trees.**

## 6. Is Chestnut Blight considered a native disease?

**A. Yes**

**B. No**

**C. Only in certain regions**

**D. It is debatable**

**Chestnut Blight is not considered a native disease; it originates from Asia, where it affects the Asian species of chestnut trees. When it was introduced to North America in the early 20th century, it devastated the formerly abundant American chestnut population, leading to the near extinction of this species in the United States. The disease is caused by the fungus Cryphonectria parasitica, which relies on specific environmental conditions to thrive and spread. Its introduction and subsequent impact on native species effectively classify it as an invasive pathogen rather than a native one. Understanding the distinction between native and non-native diseases is important, especially in forestry management and conservation efforts. Native diseases have evolved alongside their host species and are often part of the natural ecological balance, whereas non-native diseases can cause significant ecological disruption when introduced to new environments.**

## 7. Is Longleaf Pine considered serotinus?

**A. Yes**

**B. No**

**C. Only at certain altitudes**

**D. Only during winter**

**Longleaf pine is indeed considered serotinus, which means that its cones remain closed and attached to the tree for extended periods, often for several years. This adaptation allows the seeds to be released in response to specific environmental triggers, particularly heat from forest fires. Fire is an essential ecological process for the longleaf pine ecosystem, as it clears out competing vegetation and prepares the ground for seed germination. The serotinous nature of longleaf pine promotes successful regeneration in fire-prone environments by ensuring that seeds are released when conditions are most favorable for their survival. Some alternatives suggest varying conditions like altitude or season might influence serotiny, but longleaf pine's characteristic applies broadly, making it generally classified as serotinus regardless of these factors. This unique reproductive strategy is a key aspect of the longleaf pine's adaptation to its fire-dependent ecology.**

## 8. What does Oak Wilt primarily cause in trees?

**A. Root rot**

**B. Leaf wilting from the margin**

**C. Branch dieback**

**D. Growth stunting**

**Oak Wilt primarily causes leaf wilting from the margin due to a fungal infection that disrupts the tree's vascular system. This disease is caused by the fungus Ceratocystis fagacearum, which invades the xylem tissue and blocks the flow of water and nutrients throughout the tree. As the disease progresses, leaves may turn brown and appear scorched, often starting at the edges and moving inward, resulting in a characteristic marginal wilting. This symptom is a direct response to the impaired vascular function and can lead to the eventual decline of the tree if not managed. The other potential options describe different issues that are not associated with Oak Wilt, illustrating how this specific symptom distinguishes the disease from other tree health problems.**

## 9. Which tree type primarily grows in colder climates?

### A. Deciduous trees

### B. Coniferous trees

### C. Tropical hardwoods

### D. Fruit-bearing trees

**Coniferous trees are predominantly found in colder climates, primarily due to their unique adaptations that enable them to thrive in such environments. These trees, which include species like spruce, pine, and fir, have needle-like leaves that reduce water loss and are often waxy to protect against cold temperatures. Their conical shape also allows snow to slide off easily, preventing damage from accumulated snow weight. In contrast, deciduous trees shed their leaves in winter to conserve water and energy, primarily growing in temperate regions where the temperature varies greatly from summer to winter. Tropical hardwoods thrive in warm, humid climates and are not adapted to cold conditions, while fruit-bearing trees can be found in a variety of climates but are most successful in warm to temperate zones. Thus, the adaptation mechanisms of coniferous trees make them the most suitable for colder climates.**

## 10. What does the Clarke McNary Law provide for in addition to nursery stock aid?

### A. Funding for forest education programs

### B. Further aid for production

### C. Regulatory controls on logging

### D. Land acquisition for national parks

**The Clarke McNary Law, enacted in 1924, primarily aimed at promoting forestry and forest conservation across the United States. In addition to aiding nursery stock production, which was a crucial element of forest management, the law provided for further assistance in producing and propagating healthy seedlings. This enhancement in the production process was designed to ensure that there would be an adequate supply of quality trees for reforestation and afforestation efforts, thus supporting broader goals related to timber management and sustainable forestry practices. The other options, while relevant to forestry and conservation, do not directly relate to the specific provisions of the Clarke McNary Law. Funding for forest education programs, regulatory controls on logging, and land acquisition for national parks represent different aspects of forestry management and conservation strategies that are not central to the objectives of the Clarke McNary Law as it pertains to nursery stock aid. The law is primarily concerned with improving seedling production, which aligns with the selected answer.**