

2023 Area IV Envirothon Forestry Questions

1. In terms of volume, which of the following statements is true about the relationship between the annual net growth (total growth minus mortality) and removals of trees in Ohio over the last twenty years?
 - A. The annual net growth of Ohio's trees is twice as much as volume removed.
 - B. The annual net growth of Ohio's trees is slightly higher than volume removed.
 - C. The annual net growth of Ohio's trees is about the same as volume removed
 - D. The annual net growth of Ohio's trees is slightly lower than volume removed.

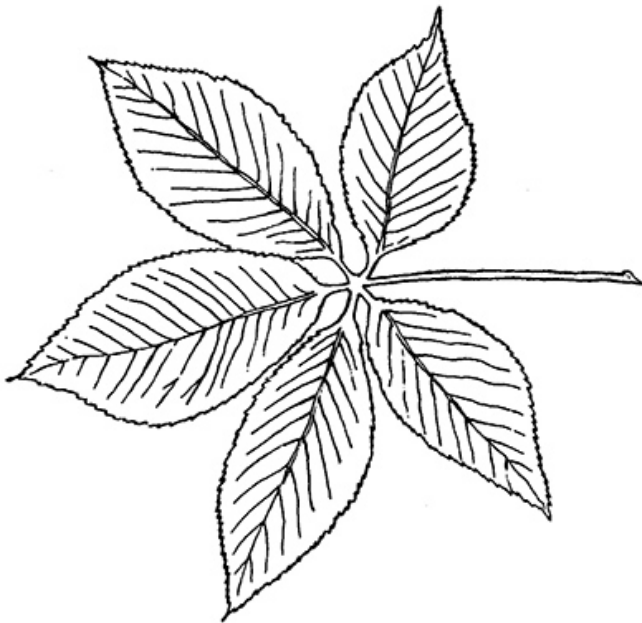
2. Ohio has close to 8 million acres of forest land, which roughly amounts to 30% of the entire state being forested. Looking at those 8 million acres, what percentage are owned by private landowners and by public landowners (Local, State, and Federal governments), respectively?
 - A. 65% private: 35% public
 - B. 75% private: 25% public
 - C. 85% private: 15% public
 - D. 95% private: 5% public

3. While the total amount of forestland in the state has remained the same over the last 30 years, the size class of the trees in the forests have changed dramatically. Which size class has experienced the greatest reduction in acres throughout the state?
 - A. Large diameter trees (sawtimber sized)
 - B. Medium diameter trees (pole sized)
 - C. Small diameter trees (seedling and sapling sized)
 - D. Non-stocked stands

4. Ailanthus, also known as tree-of-heaven, is a highly invasive tree species that is not native to the United States. There are many methods used to control this species in our native woodlands. Which of the following control methods is not recommended due to the hundreds of sprouts that come up afterward?
 - A. Basal bark herbicide application - spraying an oil-based herbicide around the bottom of the trunk.
 - B. Foliar herbicide application - spraying the leaves with herbicide.
 - C. Hack and squirt herbicide application (herbicide injection) – make cuts around the trunk and inject or spray herbicide into the cuts.
 - D. Mechanical control methods - cutting down large trees or mowing over small seedlings.

5. Stand density in a forest is a measurement of the crowding of trees in stand, and those measurements are often used to come up with management prescriptions for a forest. Which of the following is not a measurement directly used in determining stand density.
- A. Average tree height per acre
 - B. Basal area per acre
 - C. Trees per acre
 - D. Volume per acre
6. Different stages of forest succession are preferred by various wildlife species. Some wildlife need a specific successional stage while others utilize multiple stages across the landscape. If a landowner wanted to management for wild turkey habitat, which successional stage is the most important for them to maintain?
- A. Clearcut
 - B. Shrubs/Saplings
 - C. Pole timber
 - D. Mature forest
7. Merchantable height of a tree is typically measured in logs from the ground up to the point that the trunk is about 10 inches in diameter or where heavy branching, or defects are encountered. Volume is then calculated using various rules based on height and diameter. In Ohio how many feet are in one log and which rule is most commonly used to calculate volume?
- A. One log is 12 feet. Volume is calculated with the Doyle Rule.
 - B. One log is 12 feet. Volume is calculated with the International Rule.
 - C. One log is 16 feet. Volume is calculated with the Doyle Rule.
 - D. One log is 16 feet. Volume is calculated with the International Rule.

8. While leaf identification is not always the best way to determine tree species due to variations even within a single species, pictured below is the typical leaf of an Ohio buckeye. Which of the following descriptions is the most accurate of this leaf?



- A. Bipinnately compound leaf simple margins
B. Palmately compound leaf with serrate margins
C. Pinnately compound leaf with simple margins
D. Simple palmately lobed leaf with serrate margins
9. Based on the following description, which genus can you narrow down to in identifying a tree in Ohio? A tree with alternate leaf arrangement, pinnately compound leaves with seven leaflets, and serrate leaf margins.
- A. *Carya* (hickory)
B. *Fraxinus* (ash)
C. *Juglans* (walnut)
D. *Quercus* (oak)
10. Fire has effectively been removed from the landscape thanks to large-scale fire suppression policies and land management activities. Which of the following statements is not a result of the removal of fire from our forest ecosystems?
- A. Fires occur less often and much less intense than in the past.
B. Fire tolerant tree species are being outcompeted by species that are fire intolerant.
C. Increased amounts of shrubs and/or seedlings are found in the understory of forests.
D. Reduction of rare ecosystems which historically relied on fire to exist.

11. A board foot is a common unit of measurement used for volume of timber. What is a board foot equal to in cubic inches.
- A. 64 in³
 - B. 144 in³
 - C. 256 in³
 - D. 512 in³
12. After crop trees are selected using crop tree management, competing trees are removed from as many sides of the crop tree as possible (without removing other crop trees). A tree that has been released on all sides, on average, will grow how much faster compared to a tree that has not been released at all?
- A. A tree released on all sides will grow about 20% faster.
 - B. A tree released on all sides will grow about 50% faster.
 - C. A tree released on all sides will grow about 100% faster.
 - D. A tree released on all sides will grow about 200% faster.
13. Riparian forest buffers are strips of forestland that lay between waterways and other land uses such as agriculture or residential areas. These riparian areas are incredibly important to maintaining and improving these streams. Which of the following is not a benefit of riparian forest buffers to the stream ecosystems they are next to?
- A. Filtration and removal of pollutants
 - B. Increased stream temperatures
 - C. Providing detritus (leaves and woody debris)
 - D. Reduction of streambank erosion.
14. When putting together a large-scale tree planting plan, it is important to have diversity in the species planted. A variety of trees can be picked no matter the conditions of the site. If a planting area has sandy soils and is well drained, which of the following species should not be planted?
- A. Black oak
 - B. Shagbark hickory
 - C. Shellbark hickory
 - D. White oak

15. Invasive plant species are a huge threat to our forests. They threaten the biodiversity of woodlands by covering the understory and preventing native plant regeneration and limiting or removing the food sources for the wildlife. Which of the following statements is true about invasive species?
- A. After invasive shrubs are introduced, they are mostly spread by people replanting them because of their attractive qualities such as flowers.
 - B. Chemical control methods are preferred over mechanical control when dealing with invasives due to their tendency to resprout heavily.
 - C. Harvesting or overstory thinning should occur in stands with invasives present to provide light to our native species so they can compete with non-native species.
 - D. Most Invasive species in Ohio forests are shade intolerant, and therefore can be prevented by maintaining a healthy overstory of trees.
16. Any diameter measurement in forestry is taken at 4.5 feet and is known as diameter at breast height (DBH). This allows consistency in the measuring of trees. Why was 4.5 feet chosen for this measurement?
- A. Anything above this point is considered above the deer browsing range.
 - B. Any tree below this height is considered a seedling and not counted.
 - C. This is the point at which most loggers will cut a tree.
 - D. This is a comfortable height for most people to reach.
17. A landowner is doing a crop tree release on their property specifically to improve wildlife habitat. There are four trees in front of them, all different species. Which species would be the best choice for a crop tree?
- A. American beech
 - B. American sycamore
 - C. Red Maple
 - D. Tuliptree (Yellow-poplar)
18. This native conifer is known for colonizing land with poor soil and nutrient conditions, especially following freeway construction or the abandonment of agricultural fields. Trees with these characteristics are known as a:
- A. Pioneer Species
 - B. Successional Species
 - C. Colonial Species
 - D. Advantageous Species

19. The transport of goods in our world economy has brought billions of dollars' worth of damage to our forested ecosystems in the United States due to the introduction of exotic species. This tree is most susceptible to which exotic insect found in Ohio?
- A. Spongy Moth
 - B. Asian Longhorned Beetle
 - C. Emerald Ash Borer
 - D. Brown Marmorated Stink Bug
20. Mast is a term that refers to the food produced by woody plant species. If someone managing a forest wants to increase mast production for all types of wildlife which of these management activities would be the least helpful to their goals?
- A. Control invasive plants. They decrease the diversity of plant species in sites where they have taken over.
 - B. Plant and promote white oaks wherever possible. White oak acorns are the preferred hard mast to almost all wildlife species.
 - C. Thin out overstory trees in certain areas. This increases both shrub and seedling regeneration while increasing crown size of remaining overstory trees.
 - D. Maintain a couple grapevines per acre while cutting the rest. Grapevines can be damaging to trees they grow in but provide valuable soft mast for wildlife.
21. What is not an Ohio logging BMP guideline for stream crossings?
- A. Avoid crossing at a right angle (90°)
 - B. Cross as far up the watershed as possible
 - C. Avoid stream crossing when possible
 - D. Minimize the amount of road that would impact the Streamside Management Zone
22. According to the January 2023 Ohio Timber Price report, a standing Hard Maple tree that is 26" DBH and 2 sawlogs should bring a mean average of how much for this part of Ohio?
- A. \$672/MBF
 - B. \$550/MBF
 - C. \$1030/MBF
 - D. \$1087/MBF

23. Crop tree management is a widely used management practice that allows a forest owner to choose specific trees that will meet their goals and give these trees space to grow and remain healthy for years to come. Goals used to determine crop trees can include, but are not limited to, wildlife habitat, timber production, aesthetics, and water quality improvement. No matter what the goal is, what is an example of good criteria for selecting a potential crop tree?
- A. A crown that is large, healthy, and in/above the main canopy
 - B. A species that is tolerant to flooding
 - C. A trunk that is tall and straight with very little visible defects
 - D. A tree that produces hard mast
24. The emerald ash borer has devastated our forests by killing millions of trees across the Eastern United States. When these trees fall to the forest floor, they provide nutrients to plants, habitat for wildlife, and are important in storing carbon - to name a few benefits. This woody material is an example of?
- A. Fallen snags
 - B. Slash
 - C. Course woody debris
 - D. Brush piles
25. Which is not a method of purchasing trees from a commercial nursery?
- A. Container plants
 - B. Flats
 - C. Bare-root seedlings
 - D. Balled and Burlapped