

**2026 Area 1 Envirothon FORESTRY – ANSWER KEY**

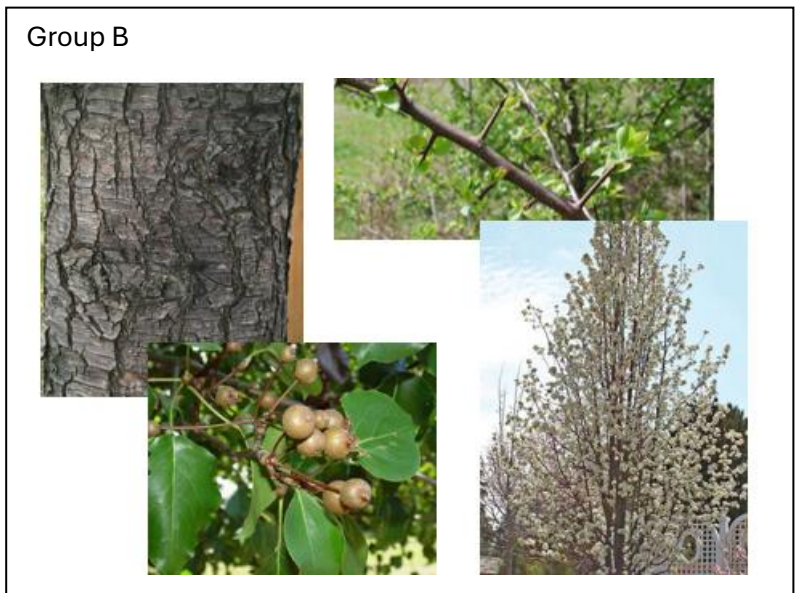
April 22, 2026

\*Biltmore sticks and 10 BAF prisms are available to share at the forestry station

1. What is the name of the invasive species in Group A?
  - a. Black walnut
  - b. Callery pear
  - c. Ailanthus / Tree of heaven**
  - d. Princess Tree



2. What is the name of the invasive species in Group B?
  - a. Pin cherry
  - b. Callery pear**
  - c. Dogwood
  - d. Princess tree



3. Which shrub is not considered an invasive species in Ohio?
  - a. Autumn olive
  - b. European privet
  - c. Multiflora rose
  - d. Spicebush**

4. What are some traits that make invasive species so successful?
  - a. Prolific seeders
  - b. Produce seed at a young age
  - c. Allelopathic
  - d. All of the above**
  
5. What is not a recommended way to control invasive species?
  - a. Wait for the trees to shade them out**
  - b. Let goats temporarily browse the area
  - c. Mulch the area
  - d. Use herbicide when completing a foliar application
  
6. Which nonnative invasive plant species does NOT have a look-alike native species of the same genus found in Ohio?
  - a. Bush honeysuckle (*Lonicera mackii*)
  - b. Common buckthorn (*Rhamnus cathartica*)
  - c. Tree of heaven (*Ailanthus altissima*)**
  - d. Asian bittersweet (*Celastrus orbiculatus*)
  
7. What species is labeled with the pink tape numbered 1?
  - a. Sassafras
  - b. Bitternut hickory
  - c. Black walnut**
  - d. Black oak
  
8. What is the Diameter at breast height (DBH) of this tree with the pink tape numbered 2?
  - a. 12 in**
  - b. 8 in
  - c. 9 in
  - d. 14 in
  
9. What species is the shrub labeled with the pink tape numbered 3?
  - a. European privet
  - b. Autumn olive
  - c. Spicebush
  - d. Bush Honeysuckle**

10. You have a 3-gallon backpack sprayer to control an area of the invasive shrub with pink tape labeled number 3. You decided to complete a foliar treatment using Ranger Pro. The label recommends using a 2% solution for foliar treatments. How many ounces of herbicide are needed to fill up your backpack sprayer?

- a. 8 oz
- b. 6 oz
- c. 2 2/3 oz
- d. 10 oz

**Spray Solution**

Desired Volume	Amount of Ranger PRO Herbicide					
	1/2%	1%	1-1/2%	2%	5%	10%
1 gal	2/3 oz	1-1/3 oz	2 oz	2-2/3 oz	6-1/2 oz	13 oz
25 gal	1 pt	1 qt	1-1/2 qt	2 qt	5 qt	10 qt
100 gal	2 qt	1 gal	1-1/2 gal	2 gal	5 gal	10 gal

2 tablespoons = 1 fluid ounce

For use in backpack, knapsack or pump-up sprayers, it is suggested that the labeled amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.



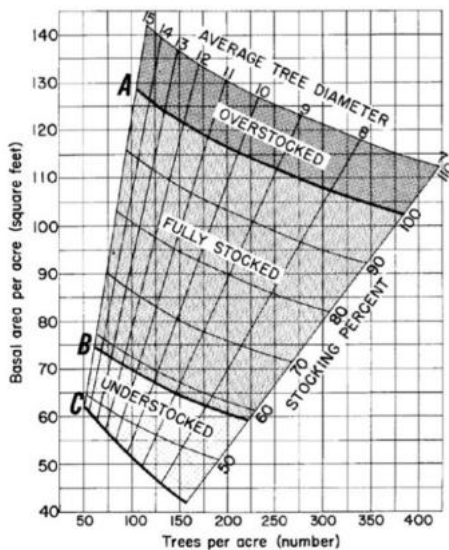
ACTIVE INGREDIENT:  
 \*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt ..... 41.0%  
 OTHER INGREDIENTS (including surfactant): ..... 59.0%  
 100.0%

11. Determine the basal area (BA) of this plot using the 10 BAF prism. The white flag is the plot center. Count every other borderline tree as in.

- a. 90
- b. 100
- c. 50
- d. 70

12. Using the BA (basal area) from question 5, determine the stocking level using the stocking table below. The average DBH for this area is 15.

- a. Overstocked
- b. Fully Stocked
- c. Understocked
- d. Over mature



Gingrich, S. F. 1967. Measuring and evaluating stocking and stand density in Upland Hardwood forests in the Central States. *Forest Science*. 13:38-53.

13. Which pest is under a federal quarantine that would prevent you from moving firewood from Williams County, Ohio to Dayton, Ohio in the southwest quadrant of the state?
- Asian Longhorned Beetle (*Anoplophora glabripennis*)
  - Spongy Moth (*Lymantria dispar*)**
  - Spotted Lanternfly (*Lycorma delicatula*)
  - Emerald Ash Borer (*Agrilus planipennis*)
14. Some invasive species are managed using “biological control,” which is an intentional introduction of a species’ natural predators or diseases in order to control their populations. Which species has not been managed with biological control in Ohio?
- Asian Longhorned Beetle (*Anoplophora glabripennis*)**
  - Hemlock Woolly Adelgid (*Adelges tsugae*)
  - Emerald Ash Borer (*Agrilus planipennis*)
  - Spongy Moth (*Lymantria dispar*)
15. Which of the following tree species is the most shade-tolerant?
- Yellow poplar (*Liriodendron tulipifera*)
  - Black walnut (*Juglans nigra*)
  - Eastern white pine (*Pinus strobus*)
  - American beech (*Fagus grandifolia*)**
16. Eastern hemlock (*Tsuga canadensis*) is an important coniferous tree species that grows particularly well in the eastern half of Ohio. What is one reason that it is considered a high conservation priority?
- It is the only nesting host for the endangered Indiana bat.
  - The wood is the preferred material for log cabin homes in Ohio.
  - The shade provided by the branches creates a microclimate that promotes cold-water fish species.**
  - The roots contain a compound that promotes seed production in nearby wildflowers.
17. If conducting a timber inventory utilizing a variable radius plot sampling method with a 5 basal area factor using an angle gauge, would this tree be counted?



- Yes**
- No

18. Which range is the ideal number of sample trees per plot with variable point sampling methods?
- 1-4
  - 5-12**
  - 13-20
  - 20-27
19. A major way that exotic invasive plants gain a foothold in a woods is:
- Cattle grazing in the woods
  - Birds disseminating seeds
  - a & b**
  - none of the above
20. A board foot is:
- A unit of measure used in the United States to estimate the volume of lumber in a tree, log, or board.
  - A piece of wood 12" wide, 12" thick, and 1 foot long.
  - A piece of wood which contains 12 cubic inches.
  - Both a and b**
21. Natural woody debris such as stumps, logs, and fallen twigs and branches that lie decaying on the ground have the following environmental effect?
- They result in large quantity of harmful bacteria entering both the surface and ground water.
  - They can wash into a stream creating log jams that have no environmental benefit.
  - They are the most often used materials by beaver for constructing dams.
  - They add beneficial organic material to the soil and provide habitat for detritivores (earthworms).**
22. Which of these species is shade intolerant?
- Pawpaw
  - Yellow Poplar**
  - Red Maple
  - Eastern Hemlock
23. Which of the following groups of trees have opposite leaves and branching?
- Maple, ash, dogwood, buckeye**
  - Oak, hickory, dogwood, sassafras
  - Cherry elm, walnut
  - None of the above
24. Which species is a shade tolerant species?
- American Basswood**
  - White Oak
  - Red Pine
  - Bigtooth Aspen

25. What cutting method removes all stems >2" DBH on an area >5-acres in area?
- Group Selection
  - Clearcut**
  - Shelterwood
  - Select Cut
26. Some trees produce chemicals that reduce the growth of competing plants. This process is called Allelopathy. What tree species common to Ohio produces a chemical that causes an allelopathic reaction?
- White Oak
  - Black Walnut**
  - Sassafras
  - White Pine
27. Which ownership category holds the largest amount of forestland in Ohio?
- National Forest and other federal
  - State and Local governments
  - Industry
  - Private families**
28. How could imported plants used for landscaping adversely impact forest ecosystems?
- They may become invasive and compete for space with native plants**
  - Birds stay in people's yards instead of inhabiting the forest
  - They use more oxygen than native species
  - Poison ivy might spread
29. The state tree of Ohio is the Ohio Buckeye (*Aesculus glabra*), the Indian name for buckeye is Hetuch which means "eye of the buck". This tree gets its common name from what part of the plant.
- Leaves
  - Bark
  - Seed**
  - Buds and branches
30. In forest ecology, trees compete between each other for:
- Nutrients
  - Light
  - Water
  - A, B, & C**
31. Where should tree diameter be measured?
- 5 feet above the ground on the uphill side
  - 5.5 feet above the ground on the downhill side
  - 4.5 feet above the ground on the uphill side**
  - 4 feet above the ground on the downhill side

32. What part of the trunk is inactive, because the cells have died, but provides strength to that trunk?
- a. **Heartwood**
  - b. Sapwood
  - c. Bark
  - d. Root collar
33. Intermediate treatments, including the removal of vines and cull trees, that leave a stand of good quality trees of the desired species is a:
- a. **Timber Stand Improvement**
  - b. Shelterwood Cut
  - c. Sanitation Cut
  - d. Treatment Cut
34. Which of the following processes may have a positive effect on woodlands?
- a. Livestock grazing
  - b. Land clearing for commercial real estate development
  - c. Invasion of non-native plants
  - d. **None of the above**
35. A Log Rule is a method to determine the board foot volume in logs and standing trees. Which of the following **is not** a standard Log Rule:
- a. Doyle
  - b. Scribner
  - c. International 1/4"
  - d. **Murphy**
36. We all live in a watershed. What is a watershed?
- a. The small streams that are not named
  - b. **An area of land that drains into lakes, rivers, and streams**
  - c. Small tributaries that only flow into the Atlantic Ocean
  - d. Headwater streams that flow into larger watershed basins
37. Where is the riparian corridor located in the watershed?
- a. The only area that contributes nonpoint source pollution to the stream
  - b. The area at the highest elevation that drains to the stream
  - c. The area underground in the watershed that provides our drinking water
  - d. **The area adjacent to the stream with natural vegetation**
38. BMPs (Best Management Practices) help to control the delivery of nonpoint source pollution to water bodies. Which of the following is **not true**:
- a. BMPs reduce pollutants available
  - b. BMPs slow the transport of pollutants by reducing water flow
  - c. **BMPs are only installed by conservation agencies**
  - d. BMPs may use chemical or biological means to treat polluted water

39. Working together to address nonpoint source pollution in your community can be done through a watershed group. What's the best **first step** for this group to address the issues in their communities?
- a. Watershed group asks the local government to address the issues of the watershed
  - b. Educate the watershed group with public meetings and brochures about the issues of the watershed
  - c. Ask citizens in the watershed to complete a survey for ideas to correct the problem
  - d. Assess the issues in the water bodies of the watershed to get a base line for improvement**