

Deforestation and Reforestation Science

Environmental Science · Answer Key · 20 Questions

1. Which biome, often lost to deforestation, stores the highest concentration of carbon in its soil rather than its living biomass?

- A) Tropical Rainforests
- B) Boreal Forests**
- C) Temperate Deciduous Forests
- D) Savannas

2. What is the primary driver of deforestation in the Amazon Basin according to the Food and Agriculture Organization (FAO)?

- A) Commercial logging
- B) Urban expansion
- C) Cattle ranching**
- D) Subsistence agriculture

3. Which term describes the process where a forest is thinned or degraded, rather than completely cleared, leading to a loss of biodiversity?

- A) Forest fragmentation**
- B) Deforestation
- C) Afforestation
- D) Clear-cutting

4. What is the main difference between 'reforestation' and 'afforestation'?

- A) Reforestation restores native species; afforestation uses invasive ones
- B) Reforestation happens on historically forested land; afforestation happens on land not recently forested**
- C) Reforestation is for timber; afforestation is for carbon sequestration
- D) There is no scientific difference

5. Which of these global forest types is currently experiencing the highest rate of net forest area loss?

- A) Boreal forests
- B) Tropical forests**
- C) Temperate rainforests
- D) Subtropical coniferous forests

6. How does large-scale deforestation impact the local hydrological cycle?

- A) It increases ground-level humidity
- B) It reduces evapotranspiration, leading to decreased local rainfall**
- C) It accelerates groundwater recharge
- D) It causes permanent soil saturation

7. Which greenhouse gas emission is most significantly increased by the burning of forests for land clearing?

- A) Nitrous oxide
- B) Methane
- C) Carbon dioxide**
- D) Chlorofluorocarbons

8. In forest ecology, what does 'old-growth' refer to?

- A) Forests over 100 years old
- B) Forests that have reached an age where they contain unique ecological features absent in younger forests**
- C) Forests primarily composed of non-native species
- D) Forests located exclusively in the northern hemisphere

9. Which specific technique is used in reforestation to increase genetic diversity and resilience in a replanted area?

- A) Monoculture planting
- B) Assisted migration**
- C) Direct seeding of a single species
- D) Clonal propagation

10. What is the primary role of 'pioneer species' in the reforestation of a degraded landscape?

- A) To provide high-quality timber
- B) To prepare the soil and microclimate for climax community species**
- C) To prevent all other vegetation from growing
- D) To act as a permanent canopy cover

11. The 'Great Green Wall' is a major reforestation project aimed at combating desertification in which African region?

- A) The Kalahari Desert
- B) The Sahel**
- C) The Congo Basin
- D) The Horn of Africa

12. Which soil nutrient is most rapidly depleted following the removal of tropical forest cover and subsequent exposure to intense rainfall?

- A) Potassium
- B) Nitrogen
- C) Phosphorus**
- D) Calcium

13. What is the 'edge effect' in the context of forest fragmentation?

- A) Increased wind speeds in the forest center
- B) Changes in microclimate and species composition at the boundary of a forest fragment**
- C) The migration of apex predators to forest edges
- D) The increase in tree growth rates at the border

14. Which international mechanism was established to provide financial incentives for developing countries to reduce emissions from deforestation?

- A) REDD+**
- B) The Kyoto Protocol
- C) The Paris Accord
- D) The Montreal Protocol

15. Why is monoculture reforestation often criticized by ecologists?

- A) It grows trees too slowly
- B) It lacks the biodiversity required for ecosystem stability**
- C) It requires too much water
- D) It increases the rate of soil erosion

16. What is a 'biological corridor' in reforestation planning?

- A) A fence protecting trees from animals
- B) A path for humans to walk through the forest
- C) A strip of habitat connecting isolated forest fragments**
- D) A section of forest dedicated to seed storage

17. Which of the following is a primary cause of forest 'dieback' in boreal regions as temperatures rise?

- A) Increased fire frequency and insect outbreaks**
- B) Excessive reforestation
- C) Decreased CO2 concentrations
- D) Too much rainfall

18. How do mycorrhizal fungi networks contribute to the success of reforestation efforts?

- A) They kill competing invasive grasses
- B) They facilitate nutrient exchange between trees and improve survival rates**
- C) They prevent trees from growing too tall
- D) They turn sunlight into energy for the trees

19. What is the 'albedo effect' regarding the removal of forest cover?

- A) The reflection of sunlight by land surfaces, which changes when forests are replaced by lighter-colored fields**
- B) The cooling effect of forest shadows
- C) The absorption of heat by dark tree leaves
- D) The process of carbon sequestration in forest soils

20. Which satellite-based tool is most commonly used to monitor real-time deforestation globally?

- A) Sonar imaging
- B) GLAD (Global Land Analysis and Discovery) alerts**
- C) Ground-level sensors
- D) Barometric pressure maps