

**Chapter 9 & 10 Review Questions + Problem Set**

Directions- On loose-leaf paper, answer the following questions in well-written complete sentences. You do not need to write the question. Number each answer so the number corresponds the question that you have answered. **Only hand-written responses will be accepted. Typed or emailed copies will not be graded.**

**Chapter 10 Review Questions**

1. Distinguish among an old-growth forest, a second-growth forest, and a tree plantation.
2. What major ecological and economic benefits do forests provide?
3. Describe the harm caused by building roads into previously inaccessible forests.
4. Distinguish among selective cutting, clear-cutting, and strip cutting in the harvesting of trees.
5. What are the major advantages and disadvantages of clear-cutting forests?
6. What are two types of forest fires?
7. What are some ecological benefits of occasional surface fires?
8. What are four ways to reduce the harmful impacts of diseases and insects on forests?
9. What effects might projected climate change have on forests?
10. List some major harmful environmental effects of deforestation.
11. What are the major underlying and direct causes of tropical deforestation?
12. Describe four ways to manage forests more sustainably.
13. What are four ways to reduce the harms to forests and to people from forest fires?
14. What is prescribed fire?
15. Describe the fuel wood crisis and list three ways to reduce its severity.
16. What are five ways to protect tropical forests and use them more sustainably?
17. Distinguish between rangelands and pastures.
18. What is overgrazing and what are its harmful effects?
19. What are three ways to reduce overgrazing and use rangelands more sustainably?
20. What major environmental threats affect national parks in the world and in the United States?
21. Describe some of the ecological effects of reintroducing the gray wolf to Yellowstone National Park.
22. How should nature reserves be designed and connected?
23. Describe what Costa Rica has done to establish nature reserves.
24. What is wilderness and why is it important?
25. What is a biodiversity hotspot and why is it important to protect such areas?
26. Distinguish between ecological restoration and rehabilitation?

**Chapter 9 Review Questions**

27. Describe how human activities threaten polar bears in the arctic.
28. What is biological extinction?
29. Define background extinction rate and mass extinction.
30. How can the extinction of a species affect other species and ecosystem services?
31. Distinguish between endangered species and threatened species and give an example of each.
32. List four characteristics that make some species especially vulnerable to extinction.
33. What is HIPPCO?
34. In order, what are the six largest causes of premature extinction of species resulting from human activities?
35. What is habitat fragmentation?
36. Describe the major effects of habitat loss and fragmentation.
37. Give two examples of the benefits of introducing some nonnative species.
38. Give two examples of the harmful effects of nonnative species that have been introduced (a) deliberately and (b) accidentally.
39. List four ways to limit the harmful impacts of nonnative species.
40. Describe the roles of population growth, overconsumption, pollution, and climate change in the extinction of wild species.
41. Explain how pesticides such as DDT can be biomagnified in food chains and webs.
42. List some possible causes of the problem decline of some honeybee populations in the United States.
43. What is colony collapse disorder and what might be causing it?
44. What economic and ecological roles do honeybees play?

## AP Environmental Science

45. Describe the poaching of wild species and give 3-examples of species that are threatened by this illegal activity.
46. Why are tigers likely to disappear within a few decades?
47. Describe the threat to some forms of wildlife from increased hunting for bush meat.
48. Describe the major threats to bird species in the world and in the United States.
49. List three reasons why we should be alarmed by the decline of bird species.
50. Describe the relationship between vultures, wild hogs, and rabies in India.
51. Describe two international treaties that are used to help protect species.
52. Summarize the history of the U.S. Endangered Species Act.
53. Describe efforts to protect the California condor from extinction.

### **Problem Set → Show All Work Do Not Use A Calculator**

#### **Rates of Forest Clearing**

Different environmental organizations provide estimates of the amount of forestland clearing that is occurring worldwide. Assume 0.40 hectares (ha)/acre.

Convert each estimate into hectares per year using dimensional analysis in order to compare them.

54. Estimate 1: 1 acre per second
55. Estimate 2: 80,000 acres per day
56. Estimate 3: 32,000 ha per day

#### **Forestry & Paper Consumption**

The forested biomes of the world contain dozens of species of trees that are used for making paper products such as cardboard, newspaper, tissue and paper for writing and printing. The average person in the US consumes about 300 kg of paper products per year, and 30% of those products consist of paper for writing and printing.

57. How much paper does the average person in the US use annually for writing and printing?
58. Given a US population of 310 million people, how many kilograms of total paper products are used annually by the US population?
59. If the average tree produces 30 kg of writing and printing paper, how many trees would be used annually for this paper if all of the paper came from trees?
60. If 50 percent of all writing and printing paper could be made from 100% recycled paper, how many fewer trees would be needed for making paper?

#### **Mountain Pine Beetle Outbreak**

In the western U.S., outbreaks of mountain pine beetles have been recorded since the late 1800's. But in the past few decades, mountain pine beetles have been killing mature trees at accelerated rates, and now millions of acres of pine forests have been affected. Lowered winter mortality of beetle larvae has been implied in the increased loss of pine trees.

61. Why has there been a reduction in winter mortality of pine beetles?
62. Describe how the activity of the beetles might enhance climate change.

#### **Assume the following**

- The average pine forest contains 5000 board feet of lumber per acre
- 1 million acres of pine forest have been destroyed
- IPM has reduced the pine beetle population by 20%

63. How many board feet of lumber have been lost to the mountain pine beetle?
64. How many board feet of lumber can be preserved if IPM strategies are employed?