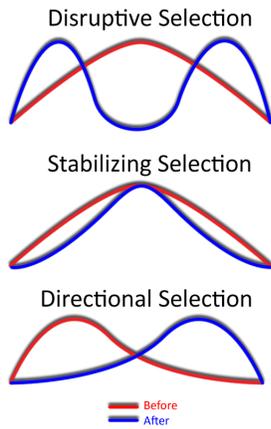


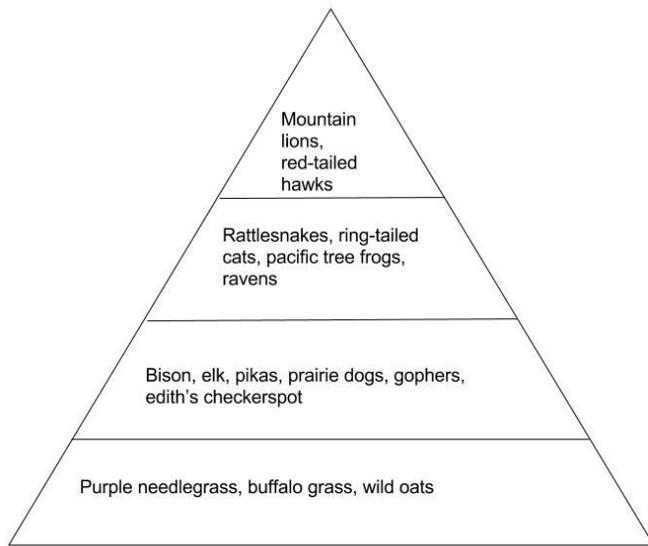
Ecology Answer (Tesoro)

Part 1

1. F
2. B
3. E
4. A
5. C
6. G
7. D
8. (Shows the three curves)+3
Gives 3 examples of organisms that reflect the individual survivorship curves +3
9. Niche partitioning is the process by which competing species use the environment differently in a way that helps them to coexist. If two species occupy the same niche, they will compete and become extinct. (+2) Two examples of organisms that demonstrate niche partitioning in deserts are the Mojave rattlesnake and the sidewinder. (Give 2 examples +2) They would normally compete for the same resources, but the Mojave rattlesnake is nocturnal while the sidewinder is diurnal/ crepuscular.
10. Each correct graph is one point. Each correct explanation is one point. Disruptive: extreme values for a trait are favored over intermediate values. Stabilizing: population mean stabilizes on a particular non-extreme trait value. Directional: extreme phenotype is favored over other phenotypes (each explanation is 1 pt)



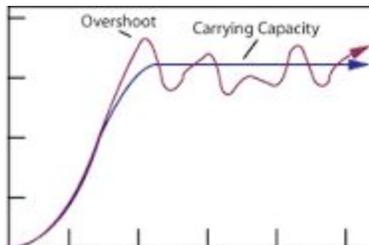
^^^ graphs for #10

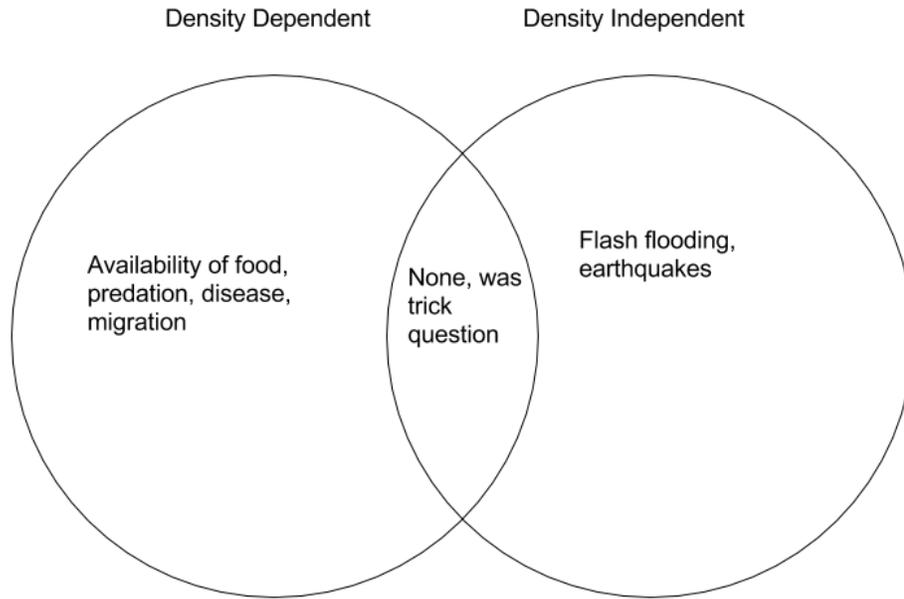


11. $\frac{1}{3}$ point for each, total of 5 points

12. 0.501 (2pt for right answer)

13. The population has reached carrying capacity and can no longer support any more prairie dogs. As seen in the graph below, once exponential growth hits the carrying capacity, the population will hover near the line. (2pt for graph, 2 pt for explanation)





½ pt each

- 14.
- 15. B
- 16. A
- 17. C
- 18. C
- 19. B
- 20. B
- 21. D
- 22. D
- 23. A
- 24. C
- 25. A
- 26. C
- 27. A

(1 pt for each correct multiple choice question)

Part 2

- 1. B
- 2. B
- 3. B
- 4. A
- 5. D
- 6. C
- 7. A
- 8. B
- 9. A
- 10. C
- 11. B
- 12. B
- 13. D

14. D

15. A

16. B- "desert soils are often rich in nutrients simply because there has been little rain to wash them away"

17. C

18. D

19. B

20. D

(1 pt for each mc question)

21. The two methods are by wind and water. Wind explanation: a lot of plants in the desert spread their seeds by wind due to a natural lack of pollinators. The small flowers generally discourage larger potential pollinators. Water explanation: the passage stresses that salt cedars are situated near bodies of water, and that is a hint to how salt cedars drop their seeds bodies of water and the current carries the seeds to new destinations. (1 pt for mentioning each type of ways seeds are spread, 1.5 points for each thorough explanation)

22. As follows (1 pt for each correct definition)

- a. Excavation: remove individual trees selectively
- b. Grubbing: A grubbing tool mounted on a tractor's hydraulic system drives a blade into the soil to sever roots below the root crown
- c. Root plowing/raking: aerial trunks and stems are cut at the soil surface and piled using a bulldozer. A 1wide root plow pulled by a bulldozer can be used to sever the root crown from the remaining root system after the roots dried
- d. Cut stump treatment: An herbicide solution is applied directly to the stump top immediately after cutting down the plant.
- e. Aerial application: herbicide is sprayed down from the sky

23. Yes/ No doesn't matter, just how they argue it. No: introducing a foreign species can be detrimental because we don't know what they can do to the other fauna and flora in the environment. They might compete with other organisms with the same niche, and take away limited resources such as water and food. Even more, past examples such as the introduction of the cane toad to Australia further proves the suggestion bad. Yes: introducing a foreign species to help control this invasive species is a good idea, because the beetles cannot spread as fast as the plants. This is because of the limited resources present in the areas with saltcedar infestations. The beetles will do their job and eventually die out/ be removed. It is also beneficial if the beetles can fit into the ecosystem and occupy a niche such as become a viable food source that can broaden biodiversity or even act as pollinators for plants it does not eat.

(1 pt for saying yes/ no. 1 pt for each specific reason, and 1 pt for explaining each reason)

24. As follows (1 pt for each reason. Other answers might be applicable)

- a. Bisons graze and control the amount of grass that grows in a grassland, and as a result they prevent the grasses from "choking" the soil and allows healthy growth
- b. Bison manure is rich in nutrients and acts as a fertilizer for grasses
- c. The migratory lives of bison trample the grass, but it also helps to stir the soil below, allowing the topsoil to be cycled

25. As follows (1 pt for each reason. Other answers might be applicable)
- Conversion to farmland
 - Overgrazing by cattle
 - Numerous types of pollution
26. As follows (½ point for listing each name-total of 2.5 points. ½ point for listing the correct location- total of 2.5 points)
- 'steppes' in Asia
 - 'prairies' in North America
 - 'pampas', 'llanos' and 'cerrados' in South America
 - 'savannas' and 'velds' in Africa
 - 'rangelands' in Australia.
27. As follows (each answer is 1 pt)
- The fires allow older grasses to die and new ones to be reborn from the nutrients that are returned to the soil.
 - A lack of fires can be very destructive. The main reason for controlled burns is that the fires will burn through the fuel before it builds up too much and lead to a catastrophic wildfire. Regular, small fires are important for the same reason.
 - If no wildfire happens, the environment won't be as rich since old nutrients are not efficiently recycled into the soil. Also, as above in b, it can lead to a massive wildfire later.
28. Ventenata grass is a super common weed that is a very effective fuel for wildfires. If allowed to grow, they will burn up basically everything and they cause wildfires that are hard to control. (1 pt as long as the person mentions wildfire or taking away nutrients from native grasses)

Part 3

- (1 pt given for each answer, total of 6. Can be both general or specific issues) Possible pros: slow greenhouse warming, preserve environment damaged from energy excavation, and economic gains from using alternative energy. Possible cons: wind power only provides energy when wind is present, solar panels create severe glare, dams cause environmental issues like they did in Olympic National Park
- C
- C
- Maximum rate at which the population of a given species can increase when there are no limits on its rate of growth (2 pt for correct definition)
- D
- False
- Nitrogen fertilizers, deforestation, fossil fuels, population growth (1 pt for each of these answers)
- ex.) mining for precious minerals = air/water pollution, Need for paper = deforestation, growing demand for food = overfishing/overhunting (1 pt for each correct answer, max of 3 pts, each **logical** explanation to the answer gives 1 pt)
- False; Survival Curves (1 pt for each section)

10. A
11. 1) To investigate and describe the diversity of the living world
2) To understand the effects of human activities on species, communities, and ecosystems
3) To develop practical interdisciplinary approaches to protecting and restoring **biological** diversity
(2 pts for each goal listed. This is a 2 pt for each because it is an important topic)
12. C
13. **Nonpoint Source (NPS) pollution** is caused by rainfall or snowmelt moving over and through the ground, it picks up and carries natural and human-made **pollutants**, depositing them into lakes, rivers, wetlands, coastal waters and ground waters
(2 pts for correctly defining)
14. A. Land use, wildlife and habitat, public health (sound and visual impacts), emissions and water use associated with the production of wind turbines
B. Hazardous materials (used to clean and purify the semiconductor surface), emissions and water usage associated with other stages of the solar life-cycle (manufacturing, materials transportation, installation, maintenance, and decommissioning and dismantlement)
C. Water quality, air emissions
(1 pt for each impact listed, might be other impacts including those here)
15. Prevention, eradicating potential invaders soon after invasion, physical (manual and mechanical), cultural (ecosystem management), biological (natural enemies), chemical pesticides, and/or integrated pest management
(as long as they list three, they get 3 pts, no need for explanation)
16. Industrial, residential, commercial, and environmental
(1 pt for each of the 4 words above listed)
17. Loss of resident species, loss of food sources, and loss of ecosystem functions provided by the habitat
(1 pt is awarded for each of the three things above)
18. 42%
(1 pt for putting any number within 40-50 range, ½ point if answer is within (30,40) u (50,60)
19. Fossil fuels, nuclear energy, biomass energy
(1 pt is awarded for listing each of the 3 things above)
20. It neutralizes the acidity in the rainwater flowing through it
(2 pts given for explaining what a buffer for acid rain does, or defines what it is in general)