

**Honors Ecology Exam** Name: \_\_\_\_\_ Date: \_\_\_\_\_

**PART 1:** Chapter 13 - Principles of Ecology -- 2 points per question

**Chapter 13 vocabulary**

**13.1** - ecology, community, ecosystem, biome

**13.2** - biotic, abiotic, biodiversity, keystone species

**13.4** - food chain, herbivore, carnivore, omnivore, detritivore, decomposer, specialist, generalist, trophic level, food web

Greek and Latin word origins

Part	Meaning
<i>bio-</i>	life
<i>eco-</i>	home
<i>-vore</i>	eat

**Use the vocabulary and definitions of the word parts above to answer questions 1-4.**

1) Explain why the root *-vore* is used in the vocabulary words from section 13.4.

**The root *-vore* is used because:**

2) Four vocabulary terms include the prefix *bio-*. Describe how they are all related.  
\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ **are all related because:**

3) Use the meaning of *eco-* to write your own definition of *ecosystem*.

4) Find an Opposite. Pair each of the words listed below with a different vocabulary term that has an opposing definition. Then, write one sentence describing a difference.

a) abiotic factor  
**Opposite:** \_\_\_\_\_

\_\_\_\_\_ **is different from abiotic because:** \_\_\_\_\_

b) herbivore  
**Opposite:** \_\_\_\_\_

\_\_\_\_\_ **is different from herbivore because:** \_\_\_\_\_

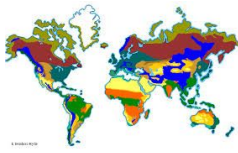
c) specialist  
**Opposite:** \_\_\_\_\_

\_\_\_\_\_ **is different from specialist because:** \_\_\_\_\_

## Honors Ecology Exam A

5) Using the word bank below, write the correct level of organization under the corresponding picture.

**WORD BANK: Organism, Ecosystem, Biome, Community, Population**



a) \_\_\_\_\_ b) \_\_\_\_\_ c) \_\_\_\_\_ d) \_\_\_\_\_ e) \_\_\_\_\_

6) Give at least one example for each of the following from the chaparral ecosystem:

- a) Organism: \_\_\_\_\_
- b) Population: \_\_\_\_\_
- c) Community: \_\_\_\_\_
- d) Ecosystem: \_\_\_\_\_
- e) Biome: \_\_\_\_\_

7) Explain how we have used direct **AND** indirect observations as part of our ecological research in the chaparral ecosystem.

**I used direct observations by:**

**I used indirect observations by:**

8) What is the difference between biotic and abiotic factors? Please circle the best choice.

- a) both refer to living organisms, but differentiate between consumers (abiotic) and producers (biotic).
- b) biotic refers to things that live or once lived, and abiotic refers to things that never lived.
- c) both refer to non-living factors, but biotic factors once lived and abiotic factors never did.

9) Label the following either biotic or abiotic.

- a) Western fence lizard \_\_\_\_\_
- b) Cell phone \_\_\_\_\_
- c) Coastal cholla \_\_\_\_\_
- d) A feather found in the chaparral \_\_\_\_\_
- e) Scat \_\_\_\_\_

10) How might a continued increase in sunlight/temperature and a decrease in rain impact biotic factors in the chaparral ecosystem. Please explain using a specific example(s) of biotic factors within the chaparral ecosystem.

**Increased sunlight and decreased rain can impact biotic factors in the chaparral by:**

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11) Several different plant species grew in the chaparral. The city council decided to turn the chaparral into a park, so they had the ground torn up and planted with grass to create a playing field.

Which ecological factor was *most* likely affected by this change?

(please circle the best choice):

- a) biomass
- b) temperature
- c) biodiversity
- d) hydrologic cycle

12) How do polychlorinated biphenyl (PCB) (a synthetic, organic chlorine compound widely used and known to cause cancer in animals including humans) affect bird populations through biomagnification?

**PCBs affect bird populations through biomagnification by:**

13) The city of Chula Vista wants to get rid of all the coyotes in the chaparral ecosystem to avoid any human-coyote conflict. As a keystone species in the chaparral, what effect(s) may the removal of coyotes have on a) the biodiversity of this ecosystem, AND b) specific organisms that exist within this ecosystem?

- a) **If coyotes were removed from the chaparral, the biodiversity may change by:**
  
- b) **Specific organisms in the chaparral that may be affected by the removal of coyotes include \_\_\_\_\_ and \_\_\_\_\_ because:**

14) A grasshopper eats california buckwheat, a kangaroo rat eats the grasshopper, and a red-tailed hawk eats the kangaroo rat. What is this an example of (please circle the best choice)?

- a) a food web
- b) a variety of carnivores
- c) a food chain
- d) a variety of producers

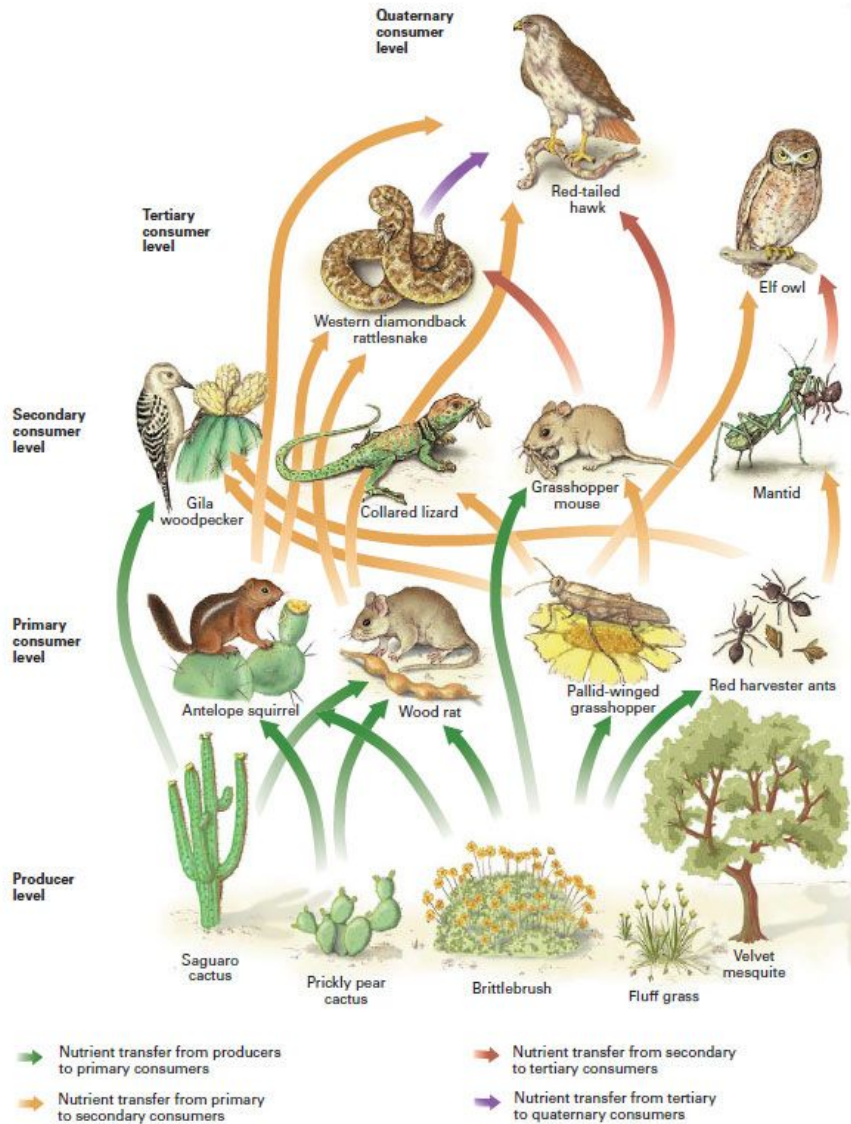
15) a) Why are food chains especially useful for describing the relationships of specialists?

**Food chains are useful in describing relationships of specialists because:**

b) If you were looking to study the complete diet of all snakes and lizards in the chaparral ecosystem, which (a food chain or a food web) would be the best to use and why?

**A \_\_\_\_\_ would be the best to use because:**

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16) Examine the above food web. This food web shows potential relationships between organisms in a chaparral ecosystem. Which type of organism *not* shown in this food web is important to the stability of the ecosystem (please circle the best choice)?

- a) producers
- b) carnivores
- c) herbivores
- d) decomposers

17) What is another name for producers (please circle the best choice)?

- a) autotrophs
- b) decomposers
- c) heterotrophs
- d) consumers

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18) The difference between a heterotroph and an autotroph is that \_\_\_\_\_  
(please circle the best choice).

- a) heterotrophs are specialists and autotrophs are generalists.
- b) heterotrophs get their energy from non-living resources and an autotrophs get their energy by eating living or once-living organisms.
- c) heterotrophs are decomposers and autotrophs are generalists.
- d) heterotrophs get their energy by eating living or once-living organisms and autotrophs make their own food through non-living resources.

19) Fill in the blanks.

In the oxygen cycle, oxygen flows into the atmosphere as a byproduct of \_\_\_\_\_ (carbon dioxide + water + light → glucose + oxygen). Organisms take in this oxygen and release carbon dioxide through \_\_\_\_\_ (glucose + oxygen → carbon dioxide + water + ATP).

### **PART 2:** Chapter 14 - Interactions in Ecosystems -- 2 points per question

20) An organism's niche differs from its habitat by which of the following? (please circle the best choice)

I.	Interspecific competition
II.	Abiotic factors
III.	The organism's behavior

- a) I only
- b) III only
- c) I and II only
- d) I and III only
- e) I, II, and III

21) Give one example for each of the following:

- a) Symbiosis: \_\_\_\_\_
- b) Commensalism: \_\_\_\_\_
- c) Mutualism: \_\_\_\_\_
- d) Parasitism: \_\_\_\_\_

22) When a population is declining, what two factors are likely outpacing what other two factors?

- a) Logistic growth and emigration are likely outpacing carrying capacity and immigration.
- b) Carrying capacity and emigration are likely outpacing immigration and logistic growth.
- c) Immigration and death are likely outpacing births and emigration.
- d) Emigration and death are likely outpacing immigration and births.

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23) A population of phytoplankton in the ocean is limited in size by the amount of sunlight that strikes the ocean's surface. (please circle the best choice) Is sunlight a **density-dependent** or **density-independent** limiting factor for this phytoplankton population?

**PART 3:** Chapter 16 - Human Impact on Ecosystems -- 2 points per question

24) Describe one similarity and one difference between the two terms in each of the following pairs.

- a) renewable resource, nonrenewable resource

**One similarity is:**

**One difference is:**

- b) greenhouse effect, global warming

**One similarity is:**

**One difference is:**

- c) indicator species, umbrella species

**One similarity is:**

**One difference is:**

25) Draw! For each vocabulary term below, draw an image that will best summarize the definition.

a) ecological footprint	c) sustainable development
b) invasive species	d) carrying capacity

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**PART 4:** Chapter 17 - The Tree of Life -- 2 points per question

26) Which two species are more closely related: *Ursus maritimus*, *Ursus americanus*, or *Bufo americanus*? Explain your answer.

\_\_\_\_\_ and \_\_\_\_\_ are more closely related because:

27) The scientific name for humans is *Homo sapiens*. What genus do humans belong to?

28) Why is it important for ecologists to include scientific names when reporting their research to other ecologists around the world?

**It is important to include scientific names when reporting research because:**

29) If two species belong to the same order, what other levels in the Linnaean system must they have in common?

30) Name the seven levels of organization in Linnaean taxonomy, from the most general to the most specific.

- 1)
- 2)
- 3)
- 4)
- 5)
- 6)
- 7)

## Honors Ecology Exam A

31) Why does roadkill matter? (5 points)

a) Claim (one-sentence answer to the question)	
b) Evidence (support your claim with at least one quote or statistic from an in class reading - remember to include an in text citation)	
c) Reasoning (justify why this evidence is important to your claim)	

32) Why do marine mammal strandings matter? (5 points)

a) Claim (one-sentence answer to the question)	
b) Evidence (support your claim with at least one quote or statistic from an in class reading - remember to include an in text citation)	
c) Reasoning (justify why this evidence is important to your claim)	

Honors Ecology Exam Grade: \_\_\_/70