

**Biology 40**  
Review #1

population	ecosystem	consumer	producer
omnivore	herbivore	carnivore	detritivore
eutrophication	climate	species	cline

1. Why is California considered a “biodiversity hotspot”?
2. Why does California have such a high rate of endemism?
3. Describe the 6 California hotspot regions.
4. Name the 7 California biomes and give an example of plants found in each one.
5. What are the 4 basic processes at work in all ecosystems?
6. Why is it said the energy flows through an ecosystem but nutrients cycle?
7. Describe the basic process of photosynthesis.
8. How does respiration make energy available to cells?
9. How is gross primary productivity different from net primary productivity? What is available to consumers? What environmental factors limit NPP?
10. What is the efficiency of energy transfer between trophic levels?
11. Describe the main compartments and factors that limit the rates between compartments of the nitrogen, phosphorous, carbon, and water cycle?
12. How have humans disrupted the above chemical cycles?
13. What are the major global circulation patterns? How does solar radiation affect these? What ocean currents result from these in the Pacific Ocean?
14. What is a rain shadow and how is it caused?
15. What are the characteristics of a Mediterranean climate?
16. Adaptation by natural selection can not occur unless what 2 requirements are met?
17. Describe the 3 types of natural selection: directional, disruptive, and stabilizing.
18. What is sexual selection? Give an example.
19. Give an example of adaptive radiation.