

ES 10 Study Guide 2 for Nicole Crane's lectures: NOTE: This is a guide only. DO NOT let it substitute for reading or studying your notes. READ the chapters in the book – you will do MUCH better on the test if you do.

Ecology, ecosystems, population dynamics

- What is habitat fragmentation?
- What effects can it have on migration, territories, and resource availability?
- What is a migration corridor? Why are they important to the management of some animals?
- Why do fences pose a 'special' threat? (they physically block movement) – no one can get through if the fence cannot be negotiated (for example if wildebeest are not able to get through in general, none will be able to)
- Abiotic and biotic factors – know examples of these and how they might affect an organism or an ecosystem
- What are the three domains and the 5 kingdoms?
- Keystone species – what is it and what is its role? Give an example
- What is a species 'tolerance limit', and how can that affect species distribution and response to change?
- Where is the bulk of the energy in a trophic pyramid (which trophic level) stored? Bottom!
- What are some problems that species may face (some already are) with rapid climate change?
- Niche – what is it? How many species occupy one? Why?
- What is the competitive exclusion principle (two species in a niche will result in competition!)? What is resource/niche partitioning?
- What are some causes and effects of competition between species?
- What are some factors that influence populations?
- What is carrying capacity?
- What is the logistic growth curve? How does it differ from exponential?
- Symbiosis – what is it? (mutualism, parasitism and commensalism)
- What is eutrophication?
- Give an example of a positive and negative feedback loop in ecosystems
- How are dead zones formed?
- What is bottom up and top down trophic forcing? Be able to give an example of how entire ecosystems can shift and change with the change in a top predator (the killer whales/otter/kelp forest example and the wolves in Yellowstone) or even with a change in a lower trophic level organism. We talked about the mutualistic zooxanthellae (small algae) that live inside coral animals. When they leave due to stress, the corals can die. When corals die, the reef can be overtaken by algae and turn a coral reef into an algal reef.
- What is adaptation?
- What is Natural Selection? Be able to give an example of Natural Selection leading to an adaptation. What are some of the major facts and inferences of Darwin's theory?
- What is a likely explanation for why polar bear fur is white? Giraffe necks long?
- What factors lead to speciation?
- What is a species?
- What is allopatric speciation?
- What is sympatric speciation?
- What is an example of sexual selection?
- Convergent evolution?
- Co-evolution?
- What is a genetic bottleneck? Why is it important?
- Why is the *rate* of change of certain abiotic factors (such as temperature) important?
- What does r and K selected mean in terms of reproductive output and strategies?