

Good essay on biology: question answers

[Experience](#), [Belief](#)



Habitat Destruction and Management

Question. Provide a thorough review of the patterns of habitat destruction explored in lecture.

Answer: Terrestrial habitat destruction is the result of increase in population. The main activities that cause terrestrial habitat destruction are clearing of natural plantation for agricultural activities, mining, logging and urban sprawl. Terrestrial habitat destruction has led to the extinction of rare species of organisms across the world. 50% of the world's land (excluding Antarctica) has been transformed or degraded and 50% of transformed land is used for monocultural agriculture & pasture. Aquatic ecosystem destruction is due to the pollution in the environment and water. Deposition of industrial effluents as well as other chemicals are harmful to aquatic animal in the water bodies, and cause the aquatic ecosystem destruction. Overfishing has caused imbalance in marine ecosystem and overexploitation of water bodies in terms of water use has also contributed to the Aquatic ecosystem destruction. 50% of world runoff is used by humans that leaves only half of the world's water for other living species. 70% of the 50% of water used by human is used for agricultural purpose. Coastal ecosystem destruction is due to the coastal land reclamation and resultant destruction of coral reefs, overfishing, pollution and introduction of invasive species. Reportedly, 50% of world's coastal ecosystems has been destroyed or altered. Theories of metapopulation and metacommunity are the center of ecology, however, are difficult to be applied to plants. The concept of metapopulation and metacommunity accentuate the interface between space and time in the ecological processes. Long-distance dispersal through spatial processes

plays an important role in producing new inhabitants. Seed bank and temporal processes control the undercurrents at both local and regional measures. Due to persistence of population and assembling of communities over time, the relative importance of spatial and temporal processes change and same patterns may appear after years. It is important to integrating long-term data with spatial data for understanding the patterns that are part of metacommunity and metapopulation theories.

Question. Apply your summary to form your own opinion regarding whether these patterns are indicative of an over-utilization of our natural resources; i. e., a recipe for some form of local, regional, or global societal collapse (drastic or gradual). Note: These are “ free” points so long as you explain your opinion and your reasoning for that opinion.

Answer: These habitat destruction patterns are indicative of over utilization of the available natural resources. This is because if people can for instance strike a balance between agriculture and fishing, the ecosystems will remain stable. Maintaining this balance, however, is rather difficult because, while the human population increases every other day, the sizes of the ecosystems remain the same. The over utilization of these available facilities is almost inevitable. The solution may only be in the improvisation of artificial facilities such as fishponds, so as to minimize on the amount of damage caused.

There is a system of nature followed in order to maintain the ecological balance. One specie eats the other species in order to survive, and there is a chain reaction that follows. For example, lizards are not welcomed at home but they are found everywhere. Nature maintains the balance through the Lizards as lizards eat the other harmful insects in the house. Similarly,

pigeons eat the insects which may be harmful to the human. Maintenance of the ecological system is the responsibility of nature, and it being well maintained by the nature. However, at our end, we must strive to keep the balance in ecological process in our own capacity. Also, the governments should lay down policies for keeping the inhabitants safe, and to maintain a balance in the ecological system.

Question. Explain why conservation organizations (public and private-non-profit) try to preserve or re-establish numerous large patches (of an ecosystem) with limited distance between them.

Answer: Conservation efforts by the conservation organizations are for safeguarding the diminishing species and safeguarding the balance in the ecological system. If only one kind of specie an ecosystem exists in an area, the members may be forced to overexploit it. Besides, should one ecosystem be threatened for one reason or another, the species living within it can find refuge in the next ecosystem. This kind of conservation is also done to strike a balance between ecosystems in a given region. Keeping the limited distance between the large patches is purposely done in order to allow the concept of metapopulation or metacommunities materializes. Although it is difficult to apply the concept to the plants due to the challenges like extent of seed dispersal for population connectivity, glitches with reading colonization and extermination in long-lived and clonal plants and the role of seed banks. Another reason is that generally, populations do not inhabit distinct habitat areas and they try to land at places within reasonable distance. Having safer distances between the habitats is essential in order to allow the spread of seeds through various means, thereby, shifting of one

specie to another habitat and grow there.

Question. Apply your summary (c) to develop a general opinion regarding whether such preservation efforts are worthwhile, given that they inevitably mean some reduction in agricultural production. Note: These are “ free” points so long as you explain your opinion and your reasoning for that opinion.

Answer: These efforts are worthwhile. Without such management, human beings may end up destroying all ecosystems, leading to drastic environmental implications. Besides, agricultural production can still be done on the available land. Other methods of agricultural production such as the introduction of genetically modified organisms, which mature within a shorter period of time, can be used in place of the natural organisms that take rather long on agricultural lands before harvest. However, all the genetically modified products are not good for the health, and they don't have the taste which is in the genuine thing. For example, fruit or vegetable grown through genetically modified procedure does not have a taste and the protein value as of the original fruit or vegetable. Again to highlight, keeping of the balance in the ecological system is nature's responsibility so let nature follow the course of action. Efforts for the preservation are laudable and should continue but not at the cost of human comfort and human development.

Question. Provide a thorough review of the impacts invasive species have had on North American ecosystems, including the traits that promote invasive ability and at least one example of each trait.

Answer: Invasive species are organisms, which do not belong where they

have been intentionally or accidentally brought by human beings. Others invade regions to which they are not suited on their own. These species may lead to degradation of habitats and destruction of the native species. Since 1948, in US there have been 6600 species introduced. Hawaii is the most invaded place as 500 alien species have invaded the island and have taken over the local inhabitant. Native species in Hawaii is rat, and there are no pigs found there. Florida is the 2nd most invaded place by alien species and Pacific coast in US is third in the number on account of the invasion of alien species with 100 native and 20 alien species. These alien and invasive species have the effects on native species like they outcompete or prey on the local species, spread alien disease to the native species and decrease the fitness of native species through hybridization. These invasive species have got a range of traits that enable them to survive in newly invaded ecosystems. These traits include:

- Close association with humans such as the rhinoceros beetle
- Ability to survive on a wide range of food types such as the Zebra Mussels
- Tolerance to a wide range of environmental conditions for example B.

Tectorum plant species that can withstand frequent fires

- Fast growth
- Rapid reproduction
- High dispersal ability
- The ability to alter growth form to suit current conditions

Question. Look up recent estimates of the cost invasive species have had on the US and worldwide. Use this information and your summary (a) to form your own opinion regarding whether laws should be enacted to restrict the

rights of US citizens to purchase, transport, sell, or release exotic species. Keep in mind that such laws will have their own economic impacts as well as an infringement on the liberty of US citizens. Which price is worse? Note: These are “ free” points so long as you explain your opinion and your reasoning for that opinion.

Answer: In my opinion, laws should be enacted to restrict the rights of US citizens to purchase, transport, sell or release exotic species. This should be done by the department that comprises of experts who are well versed with knowledge on plant and animal species, as well as their effects on new ecosystems. It is important that such a restriction is enacted to ensure the local systems are not threatened. Once the laws have been enacted, the citizens should be educated on the importance of maintaining organisms that are native to their ecosystems. They should also be educated on the importance of having their exotic species approved before getting into their native ecosystems. Information on the massive negative impacts that these exotic species may have on their various ecosystems should also be given so that they do not feel that their liberty is infringed upon. Such laws, however, will have the effect on the economy as it will reduce the sale and purchase of so many species and will bring down negative economic effects. This may also lead to unemployment to many people. Restricting US citizens from purchasing and selling what they want is equivalent to restricting the personal freedom and liberty of the citizens. There is a requirement of maintaining a balance between the making of laws and its effects on the economy, individual employment and personal liberty of the people.