



# AP Bio FRQ Fridays

2014 #3  
Ecological Changes & Human Impact



# FRQ Friday #27

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As part of a new suburban development, a sports complex consisting of athletic fields and buildings is constructed in a formerly wooded area.

(a) **Predict ONE** ecological consequence on the local plant community that is likely to result during the site preparation and construction of the sports complex. **Justify** your prediction.

Predicted consequences on plant community (1 point)	Justification of prediction (1 point)
Plant death / Loss of plant biomass	<ul style="list-style-type: none"><li>• Removing trees/shrubs</li><li>• Pollution from construction equipment</li><li>• Fewer individuals for reproduction</li><li>• Altered habitat, e.g. change in amount of sunlight, obstruction by buildings, isolation of populations</li></ul>
Reduced number of plant species / Loss of biodiversity	<ul style="list-style-type: none"><li>• Removal of trees/shrubs</li><li>• Reduced habitat</li><li>• Pollution from construction kills local species</li></ul>
Decreased genetic diversity	Reduction in population size / bottleneck
Habitat loss	<ul style="list-style-type: none"><li>• Removal of trees/shrubs</li><li>• Soil loss due to lack of ground cover</li></ul>
Increased success of sun-tolerant plants	Removal of shading trees
Introduction / Immigration of new plant species	Creation of new habitat and landscaped environments



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- (a) **Predict** ONE ecological consequence on the local plant community that is likely to result during the site preparation and construction of the sports complex. **Justify** your prediction.

Because of the construction of the sports complex, the plants that may reside there would either be cut off or ~~cut off~~ be built on top of. If the plants were cut off and removed from the area, then less of those plants would grow, making the population decrease significantly. The same thing would happen if the building was built on top of the plants because the plants would eventually, due to absence of light and  $\text{CO}_2$ . As a result, we would also lose some  $\text{O}_2$  production due to less plants being grown in that area.



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(b) To maintain the playing fields, large quantities of water and chemicals are applied regularly to the grass-covered areas. **Predict ONE** effect on the local animal community that might result from regular use and maintenance of the playing fields. **Justify** your prediction.

Predicted consequence on animal community (1 point)	Justification of prediction (1 point)
Harm / Death to animals	<ul style="list-style-type: none"><li>• Exposure to toxic chemicals</li><li>• Toxic chemicals accumulate through the food chain Persist in the environment</li><li>• Contaminated groundwater</li></ul>
Emigration Displacement	<ul style="list-style-type: none"><li>• Loss of habitat and/or food</li><li>• Loss of access</li><li>• Exposure to toxic chemicals</li></ul>
Loss of native animal biodiversity	<ul style="list-style-type: none"><li>• Loss of plants on which the animals depend</li><li>• Loss of habitat</li></ul>
Mutations	Chemicals effect on DNA
Improved conditions for animals	Increased food sources
Immigration of new animal species	Formation of new habitat
Less potable/drinking water for animals	<ul style="list-style-type: none"><li>• Increased salinity in water reservoir</li><li>• Removal of water from reservoir / wells</li><li>• Contamination of water with chemicals</li></ul>



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- (b) To maintain the playing fields, large quantities of water and chemicals are applied regularly to the grass-covered areas. **Predict ONE** effect on the local animal community that might result from regular use and maintenance of the playing fields. **Justify** your prediction.

Due to the application of chemicals on grassy areas, animals that may feed off of grass, including omnivores and ~~herbivores~~ herbivores, may start to die off because of the chemicals altering the grass. The chemicals on the grass could kill the animals and the population of local herbivores ~~would~~ would decrease significantly. Omnivores would start feeding off of animals more, ~~and herbivores would start feeding off of~~

