When Marshes Shrink

Trace how one habitat change can affect several populations.

LS.9.a "changes in habitat can disturb populations;"

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each habitat change and circle each affected population. Draw an arrow from each change to its stated effect so you can trace how a changed habitat disturbs populations.

Willow Marsh Drains

1 At Willow Marsh, a new drainage ditch carried water away after spring rains. By early summer, the marsh was shallower and several muddy edges had dried. Cattails that once stood in shallow water began to wilt. The change was not just a smaller pond. It altered places where organisms fed, hid, laid eggs, and escaped predators. A habitat change can therefore disturb several populations at once, even when the ditch is outside the marsh itself.

2 Leopard frogs usually attach egg masses to plants in quiet, shallow water. As water fell, some egg masses were left above the waterline and dried. Fewer eggs hatched, so the tadpole population dropped. Dragonfly larvae also lived in the shallow water, and many died when their pools disappeared. Mallard hens lost some cattail cover for nests, making eggs easier for predators to find. These direct effects reduced survival or reproduction for three populations in the marsh.

3 Changes can spread through food webs and shelter needs. Aquatic garter snakes hunt frogs, so fewer young frogs may leave less food for snakes. Marsh wrens weave nests into cattails, so dying cattails can reduce their nesting space. Biologists counted frog egg masses, listened for wren songs, and searched for snake sheds each week. They also measured water depth. These observations helped them connect a habitat change to population disturbances instead of assuming that every population changed for the same reason.

2 ANSWER WITH EVIDENCE

Use the passage

1. What habitat change caused some leopard frog egg masses to dry before they hatched?

2. Name two populations that were directly harmed by the lower water level. State how each was harmed.

3. What possible effect could fewer young frogs have on aquatic garter snakes? Use the food relationship in the passage.

4. Why did the biologists measure water depth and observe several populations each week?

3 YOUR TURN

Your own words

Describe a habitat change not named in the passage. In three sentences, explain a direct effect on one population and a possible ripple effect on a second population.

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PART 1 · READ AND MARK

Underline each habitat change and circle each affected population. Draw an arrow from each change to its stated effect so you can trace how a changed habitat disturbs populations. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What habitat change caused some leopard frog egg masses to dry before they hatched?	**The drainage ditch lowered the marsh water level, leaving some egg masses above the waterline.**
2	Name two populations that were directly harmed by the lower water level. State how each was harmed.	**Leopard frog tadpoles decreased because fewer eggs hatched. Dragonfly larvae died when their shallow pools disappeared. Accept mallards lost cattail nest cover, making their eggs easier for predators to find.**
3	What possible effect could fewer young frogs have on aquatic garter snakes? Use the food relationship in the passage.	**Fewer young frogs may leave less food for aquatic garter snakes.**
4	Why did the biologists measure water depth and observe several populations each week?	**The observations helped them connect the habitat change to population disturbances rather than assume every population changed for the same reason.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

A field of native flowers is replaced by a parking lot. Fewer flowers provide less nectar for bumblebees, so the local bumblebee population may decrease. Plants nearby may receive less pollination, which can reduce the number of seeds they produce.

Accept any scientifically reasonable habitat change with a clear cause-and-effect explanation for one population and a plausible linked effect for a second population. Population changes may be stated as increases, decreases, movement away, lower survival, or reduced reproduction when supported by the described change.