Texas Food Web Changes: Predicting What Happens Next

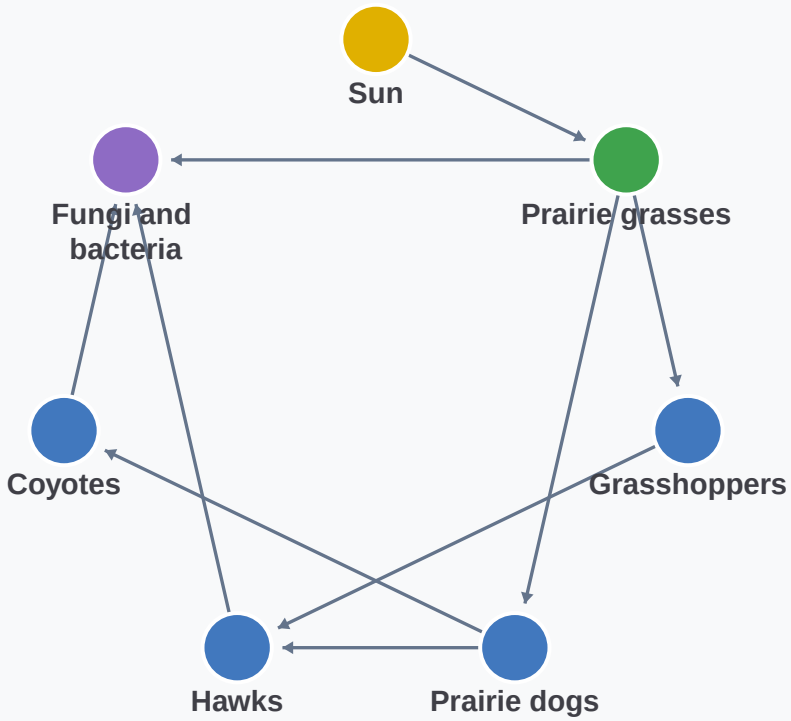
Date Created: August 31, 2026
kaizly.com

Lesson:

Read the passages and examples below to learn about predicting how ecosystem changes affect energy transfer and matter cycling in a food web. Think about producers, consumers, decomposers, and what happens next when one part of the ecosystem changes.

> A food web shows who eats whom in a habitat. Energy starts with producers, like grasses or algae, because they make their own food using sunlight. Consumers get energy by eating plants or animals. Decomposers, such as fungi and bacteria, break down dead matter and return nutrients to the soil or water. That keeps matter cycling through the ecosystem.

Texas prairie food web

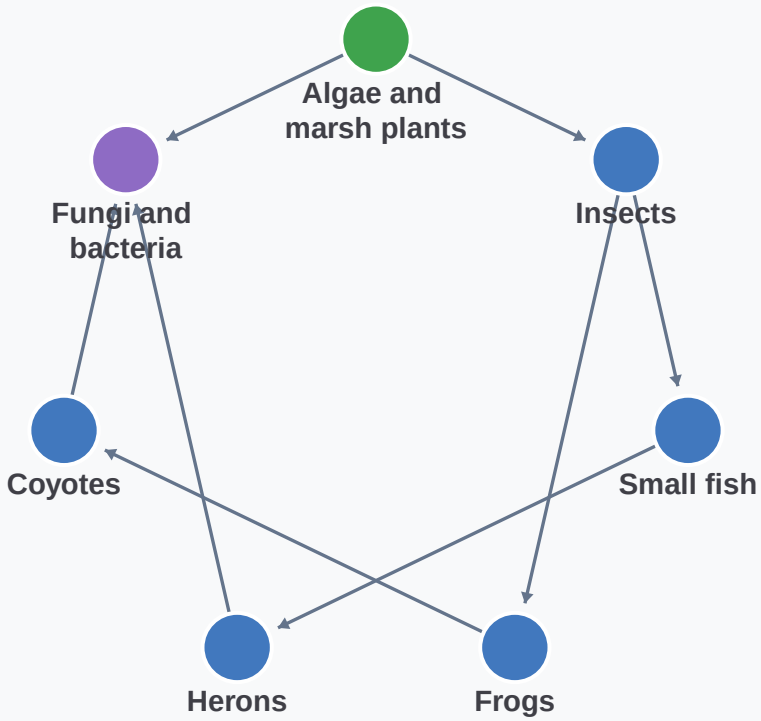


Each arrow shows which way energy moves. Follow the arrows to predict what happens next when one part changes.

When one part of a food web changes, the effects can spread. If a producer is lost, less energy enters the web, so plant-eating consumers may decline first. Then animals that eat those consumers may also decline. If a consumer becomes too common, it may use up more food, which can change other populations too. In every case, energy transfer becomes weaker or shifts to a different path.

Texas ecosystems can change in many ways, such as drought in the prairie, invasive species along the gulf coast, or fewer plants in the hill country. A drought can reduce grasses, which lowers energy for prairie dogs and then for coyotes or hawks. An invasive species may crowd out native producers, changing what consumers can eat. Even when living things decline, decomposers still help recycle matter from dead plants and animals.

Gulf Coast marsh food web



Arrows show which way energy moves. Trace two steps from any change to predict what happens next.

> To predict an effect, follow the path of energy and matter through the food web. Name the first organism affected, then explain the next change that follows. Use the words producer, consumer, decomposer, energy transfer, and matter cycling when they fit. Strong predictions show how one disturbance can cause two connected changes in the ecosystem.

Matter cycles back to the start

1. Producers
Grasses make food using sunlight

↓

2. Consumers
Animals eat; matter moves through the web

↓

3. Dead matter
Plants and animals die

↓

4. Decomposers
Fungi and bacteria break it down

↓

5. Nutrients in the soil
Producers take them up and grow again

(repeats)

Energy flows one way through a food web, but matter keeps cycling. A change at one stage changes the whole loop.

If drought reduces prairie grass, prairie dogs may decline because less energy reaches them through the food web, and coyotes may then decline because they have less prey.

If an invasive plant crowds out gulf coast producers, fewer herbivores may survive, and decomposers may later break down less dead plant matter from that area.

If a hill country producer disappears, consumers that depend on it lose energy first, and the food web may become smaller as matter keeps cycling more slowly through dead plants and animals.

Instructions:

Read each question carefully. Use what you know about food webs, energy transfer, and matter cycling to explain what happens next in each situation. Write 1 to 3 complete sentences for each answer.

1. In a prairie, drought reduces the grasses. Predict two changes that may happen next in the food web, and explain why.

2. A student says this about a gulf coast food web: 'If an invasive plant crowds out native producers, decomposers stop helping because the food web breaks.' What is wrong with that idea?

3. In a Gulf Coast marsh, a pesticide runoff event lowers the number of insects living in the reeds. Small fish and frogs eat those insects, and herons and coyotes may eat the fish or frogs. Explain how this change could affect the coyote population and the rest of the food web.

4. A food web in the gulf coast has this pattern: algae make food, small fish eat algae, larger fish eat small fish, and decomposers break down dead matter. A storm damages many algae. What does this model show will happen first, and why?

5. A drought in a Texas prairie reduces prairie dog populations, and fewer grasses grow back after grazing. Explain how these changes could affect coyotes and other organisms in the food web. Use the words consumer and energy transfer in your answer.

6. In a hill country habitat, fewer native plants survive after a dry season. Predict one change in a consumer population and one change in matter cycling after those plants die.

Texas Food Web Changes: Predicting What Happens Next

(Answer Key)

Date Created: August 31, 2026
kaizly.com

1. In a prairie, drought reduces the grasses. Predict two changes that may happen next in the food web, and explain why.
Hint: Start with the producer that is affected first.

Expected Key Points:
- Names the producer affected first
- Predicts a consumer decline because less energy is available
- Predicts a second connected change in another animal population
- Uses energy transfer language

Evaluation Criteria: Full credit for a clear two-step prediction that starts with grasses and follows the energy flow to at least two affected populations. Partial credit for naming only one correct effect or giving a vague explanation.

Explanation: When grasses decrease, less energy enters the food web. Prairie dogs may decline first, and then coyotes or hawks may also decline because they have less prey.

2. A student says this about a gulf coast food web: 'If an invasive plant crowds out native producers, decomposers stop helping because the food web breaks.' What is wrong with that idea?
Hint: Think about what decomposers do after living things die.

Expected Key Points:
- Identifies that decomposers still function
- Explains that decomposers break down dead plants and animals
- Explains that matter cycling continues even after the disturbance

Evaluation Criteria: Full credit for correcting the misunderstanding about decomposers and matter cycling. Partial credit for saying the food web changes but decomposers still work.

Explanation: Decomposers do not stop helping. They keep breaking down dead matter and returning nutrients, so matter cycling continues even when the food web changes.

3. In a Gulf Coast marsh, a pesticide runoff event lowers the number of insects living in the reeds. Small fish and frogs eat those insects, and herons and coyotes may eat the fish or frogs. Explain how this change could affect the coyote population and the rest of the food web.

Expected Key Points:

- Explains that fewer insects means less food/energy for small fish and frogs
- Connects the decline in fish or frogs to effects on coyotes and other predators
- Describes a wider food-web effect, such as population decline, movement, or prey switching
- Uses cause-and-effect reasoning to show how the change spreads through the ecosystem

Evaluation Criteria: Score for a multi-step explanation that links pesticide runoff to fewer insects, then to changes in fish or frog populations, and then to impacts on coyotes and other organisms in the food web. Full credit requires a clear chain of cause and effect. Partial credit for mentioning only one link or naming affected animals without explaining how the change spreads.

Explanation: If insects decline, small fish and frogs may have less food and decrease. Then predators such as herons and coyotes may have fewer prey animals, so their populations may also drop or move. The change can spread through the food web and affect many organisms, not just one species.

4. A food web in the gulf coast has this pattern: algae make food, small fish eat algae, larger fish eat small fish, and decomposers break down dead matter. A storm damages many algae. What does this model show will happen first, and why?
Hint: Identify the producer in the model.

Expected Key Points:

- Identifies algae as the producer
- States that the first consumer affected is small fish
- Explains the change using energy transfer

Evaluation Criteria: Full credit for reading the food web correctly and naming the first affected consumer with a reason. Partial credit for naming algae as important without explaining the next effect.

Explanation: The model shows that small fish will be affected first because algae are producers and the first source of energy in the web. If algae are damaged, less energy reaches the small fish.

5. A drought in a Texas prairie reduces prairie dog populations, and fewer grasses grow back after grazing. Explain how these changes could affect coyotes and other organisms in the food web. Use the words consumer and energy transfer in your answer.
Hint: Think about how one change can affect more than one living thing.

Expected Key Points:
- Explains that drought or fewer grasses reduces the food supply for prairie dogs.
- Uses consumer correctly to describe prairie dogs and/or coyotes.
- Explains that less energy transfers through the food web when prairie dogs decline.
- Connects the prairie dog decline to possible coyote decline.
- May mention that other organisms are affected because food web relationships change.

Evaluation Criteria: Award full credit for a multi-step explanation that links drought, reduced grasses, prairie dog decline, and coyote decline through energy transfer. The response must use consumer and energy transfer appropriately. Award partial credit for explaining only one part of the chain or for a generally correct food-web explanation with minor vocabulary errors.

Explanation: A drought can reduce producers like grasses, so prairie dogs have less food and may decline. Because prairie dogs are consumers and coyotes eat them, less energy transfers through the food web to coyotes. Other organisms may also change because fewer plants and animals are available for food and shelter.

6. In a hill country habitat, fewer native plants survive after a dry season. Predict one change in a consumer population and one change in matter cycling after those plants die.
Hint: Start with the producer change.

Expected Key Points:
- Predicts a consumer decline due to fewer plants
- Mentions decomposers breaking down dead plants
- Explains that matter cycling continues

Evaluation Criteria: Full credit for a prediction that includes one consumer change and one matter-cycling change. Partial credit for only describing the plant loss or only mentioning decomposers.

Explanation: If fewer native plants survive, herbivores may decline because they have less food and less energy. After plants die, decomposers break them down, so matter still cycles through the ecosystem.