Reintroducing Native Species

Science Grade-Level Expectations
This instructional task addresses content related to the following science grade-level expectations:

   (LS-M-C2) Describe the roles of producers, consumers, and decomposers in a food chain (GLE 24)
   (LS-M-C4) Explain and give examples of predator/prey relationships (GLE 28)
   (SE-M-A4)Describe the consequences of several types of human activities on local ecosystems (e.g., polluting streams, regulating hunting, introducing nonnative species) (GLE 50)

	Objectives
Task	- Examine and explain the role of whooping cranes in a food chain or web - Describe the predator-prey relationship of whooping cranes in their environment - Analyze consequences of the reintroduction of a native species on the environment - Predict consequences of the whooping crane reintroduction program in Louisiana
Sample Student Exemplar Response	

Implementation Tips:
- This task is intended to be integrated into a larger unit that contains hands-on science opportunities, student-led investigations, non-fiction reading, and a variety of other instructional strategies.
- Teachers may choose to use or modify the task as part of an instructional lesson or as a formative or summative assessment.
- Strategic instructional decisions will need to be determined prior to implementation such as:
   - Should the provided text be read aloud to students or read independently by students?
   - Will students work collaboratively or individually to complete the task?
   - What content knowledge and skills will students need to have prior to attempting the task?
   - Does the task need to be modified based on the needs of my students at the time of implementation?

- View the first 10 minutes of the TED talk For More Wonder, Rewild the World.

- Read the Whooping Crane Fact Sheet, food web information, and watch the *Whooping Crane PSA*.

- Analyze the following data on reintroduced whooping cranes from Louisiana Department of Wildlife and Fisheries:
 > *Maximum size of the Louisiana non-migratory population at the end of the report period was 38 birds (17 males, 21 females). Estimated distribution included 25 cranes in Louisiana, 6 in Texas and 7 not recently reported (2 for over one month, 2 for over two months, 1 for over three months and 2 for over four months).*

- Study the Louisiana Wildlife and Fisheries map of whooping crane movement.

Task Part 1:
Describe the two roles that whooping cranes can occupy in a food chain or food web. Then, identify predators of the whooping cranes and develop a clear explanation of the predator / prey relationship.

Task Part 2:
Reintroducing the wolf population in Yellowstone had significant effects, both direct and indirect. Describe some of those effects. Predict ways the whooping crane reintroduction project may impact the southern wetlands environment in which they live.
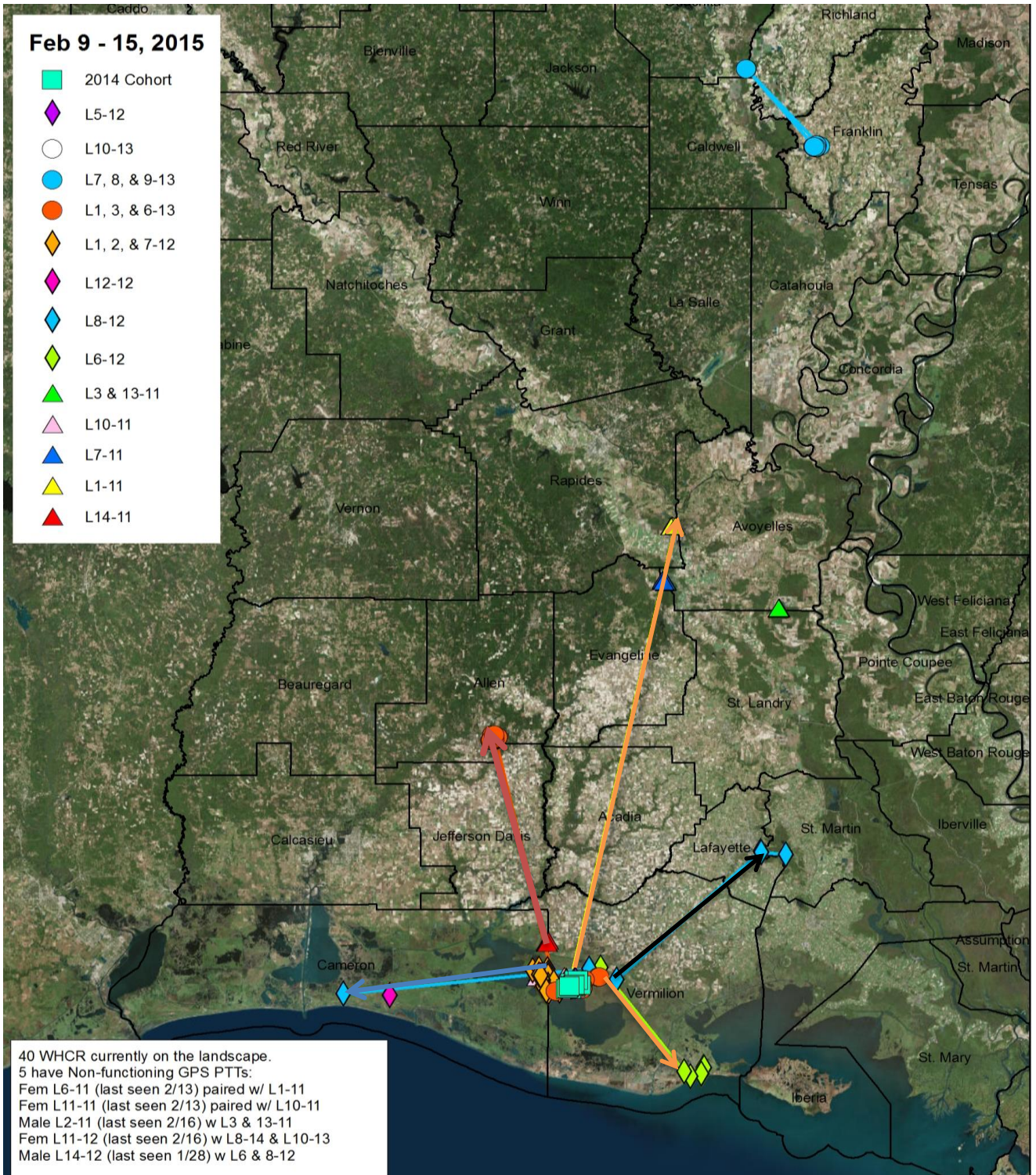
Source: Louisiana Department of Wildlife and Fisheries

Sample Student Exemplar Response

Part 1:
The whooping cranes are primary consumers because they eat acorns, root plants and berries produced by plants. Primary consumers feed off of plants rather than other animals. Whooping cranes are also secondary consumers. Secondary consumers feed off of primary consumers. Whooping cranes eat insects, which are primary consumers.

Bobcats, panthers, alligators, and people are predators of whooping cranes. Predators hunt and feed off of other animals, which are called prey. In this instance, whooping cranes are often prey to the bobcats, panthers, and other predators. Animals often develop adaptations such as camouflage, mimicry, defensive mechanisms, agility, and speed to avoid being eaten. Predators depend on prey for survival. If the number of prey decreases, the number of predators also decreases because they don't have enough food to eat. The prey also depends, in a different way, on predators. Without predators, the population of animals would become too large and the ecosystem would not have enough plants, insects, and other resources to support the animals. A balanced ecosystem is one in which the animal and plant life depend on one another and ensure that all species survive.

Part 2:
Some of the effects the reintroduction of the wolf population had in the Yellowstone ecosystem are:
- The beaver population is increasing because wolves help control the elk population, which competes with the beaver for food.
- The willow stands are increasing because there are not as many elk to destroy them.
- The increases in willow stands provide more habitat for songbirds.
- The wolf population impacts the coyote population because they hunt coyotes and compete with them for other food sources.
- Fewer coyotes are able to hunt small rodents, so raptors like the eagle and osprey have more prey and are making a comeback.
- With the increase in beaver populations, more dams are being built so the flow of streams is changing. Water is being stored in ponds around the dams and these provide a habitat for fish.

The whooping crane return may affect the food chain and the southern wetlands ecosystem. Areas that have a larger number of cranes will be affected more than the areas that only support a few cranes. According to the map from Louisiana Wildlife and Fisheries, most of the cranes are staying near the coast but some are migrating farther away. Areas where the cranes live may have a reduction of in the fish mollusks and crabs that are eaten by the cranes. These animals also compete with the cranes for food. The number of oak trees in the wetlands near the cranes may decrease because whooping cranes eat acorns from which the oak trees grow. If the whooping crane population gets larger, the number of top predators such as bobcats, panthers, and alligators may increase because they have more food available. Whooping cranes have an impact on the ecosystem in which they live. The impact will be more substantial if the population gets larger.