7th Grade EdZoocational Adventure Guide

Theme: Ecosystem Check

Grade level: 7th

DESE Standard: 7-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

Overview: If we consider an ecosystem like a large household, we can organize and discuss the various positions each animal fills within it. As with any home, there is a distinct hierarchy of animals within the ecosystem. At the top, apex predators help control the population of individuals within the ranks beneath them. There may be predators beneath the larger ones completing similar tasks with other species. There are animals whose role is to help grow new plants by eating fruits and dispersing the seeds when they defecate. There are even clean-up crews who get rid of the scraps the "higher-ups" leave behind. Every creature has a distinct job, or niche, within the ecosystem unit. Sometimes, you may even find different animals completing the same type of job, but at different times (diurnal versus nocturnal).

Activity: The activity sheet focuses on the relationships of animals living in similar regions of Africa. Students will document the role of each animal and its relationship to at least one other animal in its region. Then, write how that animal's role is significant to the ecosystem in which they belong.

Activity Extension: Apply these same discussions to a different region, or ecosystem, around the world. Are there similar hierarchies of species? Are there different animals filling roles like those discussed in Africa? What type of "household" exists here in Arkansas?

7th Grade Tour Guide

This self-guided tour takes your class along a path to exhibits with animals that live in the same regions but have different roles within it. This path does not cover the entirety of the Zoo but is meant to accentuate the lesson narrative.

- As you enter, head to the right past Penguin Pointe and the elephants. Turn right at the alpacas.
- Remind students that calm, quiet guests see more animals. Loud noises send them into hiding, making them harder to find.
- **African Lion:** African lions are apex predators of the African savannah. Their biggest role in benefiting the African ecosystem is to help with population control of larger herbivores in the area, including zebras and buffalo. This deters overgrazing of the land. When lions keep herbivore populations balanced, they help maintain the condition of grasslands and forests.
- **Sulcata (Seasonal):** Sulcata tortoises help maintain vegetation in poorly soiled and arid ecosystems. When Sulcata tortoises eat the plants around them, the seeds will pass through their feces onto the ground. This makes them very successful seed dispersers. Their feces also serves as a fertilizer to promote plant growth, adding to the limited resources and nutrients in the area.
- **Cheetah:** Cheetahs are another apex predator in the African savannah. They assist lions in controlling the herbivore population, which helps maintain a high quality ecosystem. While lions take on large prey, cheetahs manage the smaller plant-eaters like antelope and rabbits. If cheetahs were removed from the ecosystem, the vegetation would be overeaten, which could lead to soil erosion and vegetated areas turning into deserts. The Zoo has two cheetah brothers, Padfoot and Prongs.
- **Ostriches:** Ostriches play a role as predator alerts within grazing groups. Ostriches have very large eyes, about the size of billiard balls, giving them excellent vision. If they spot a predator, they will create a booming noise that alerts other animals nearby. Ostriches can be found grazing with wildebeest, giraffes, zebras, and other herbivores. They are welcomed by these groups due to their high efficiency in predator alerting.
- **Zebras:** Zebras play varying ecological roles in Africa. Zebras maintain the vegetation by grazing on the dry and hardened grasses that are too tough for other herbivores to eat. This clears the way for the growth of new grasses and plants. Zebras are also a food source for lions and hyenas.
- **Rhinoceros:** Andazi and Kevin are considered keystone species of Africa, and they have big ecosystem roles. They help reshape the land over time by wallowing and creating new watering holes. They spread nutrients through their feces (since they can eat up to 110 pounds a day) which provides food for other animals like the dung beetle. They also play hosts to parasites that are food for other animals, like the ticks that are preyed upon by oxpeckers at watering holes. They also maintain the vegetation around them by browsing and consuming plants and plant material.
- **Crowned Cranes:** Crowned cranes play dual roles in their environment. They are omnivores and their diets consist of different vegetation as well as smaller animals including fish and insects. Not only does this make them valuable seed dispersers, but also population control in their ecosystem. Preferring to live in the African wetlands, crowned cranes are especially important as an environmental indicator species. They only nest in the healthiest of areas, so their presence indicates a quality ecosystem. Their absence lets scientists know that the habitat is not a healthy one.

Name:

Animal Interactions

Instructions: Use this field journal to explore the ecology of the animal kingdom while on your visit to the Little Rock Zoo. Fill in *Role in Ecosystem* by labeling animals as predators, prey, or both. In *Significance of Interaction*, describe how the animals interactions as predator or prey affect their ecosystems.

Animal:	Role in Ecosystem:	Significance of Interaction:
Lions 	apex predator	population control of larger herbivores, like zebras, to prevent overgrazing and to maintain grasslands
Servals 		
Sulcata Tortoises 		
Cheetahs 		
Ostriches 		
Zebras 		
Rhinoceros 		
Crowned Cranes 		

Connection: What role do you play in your family? How does your role relate to adults' roles?