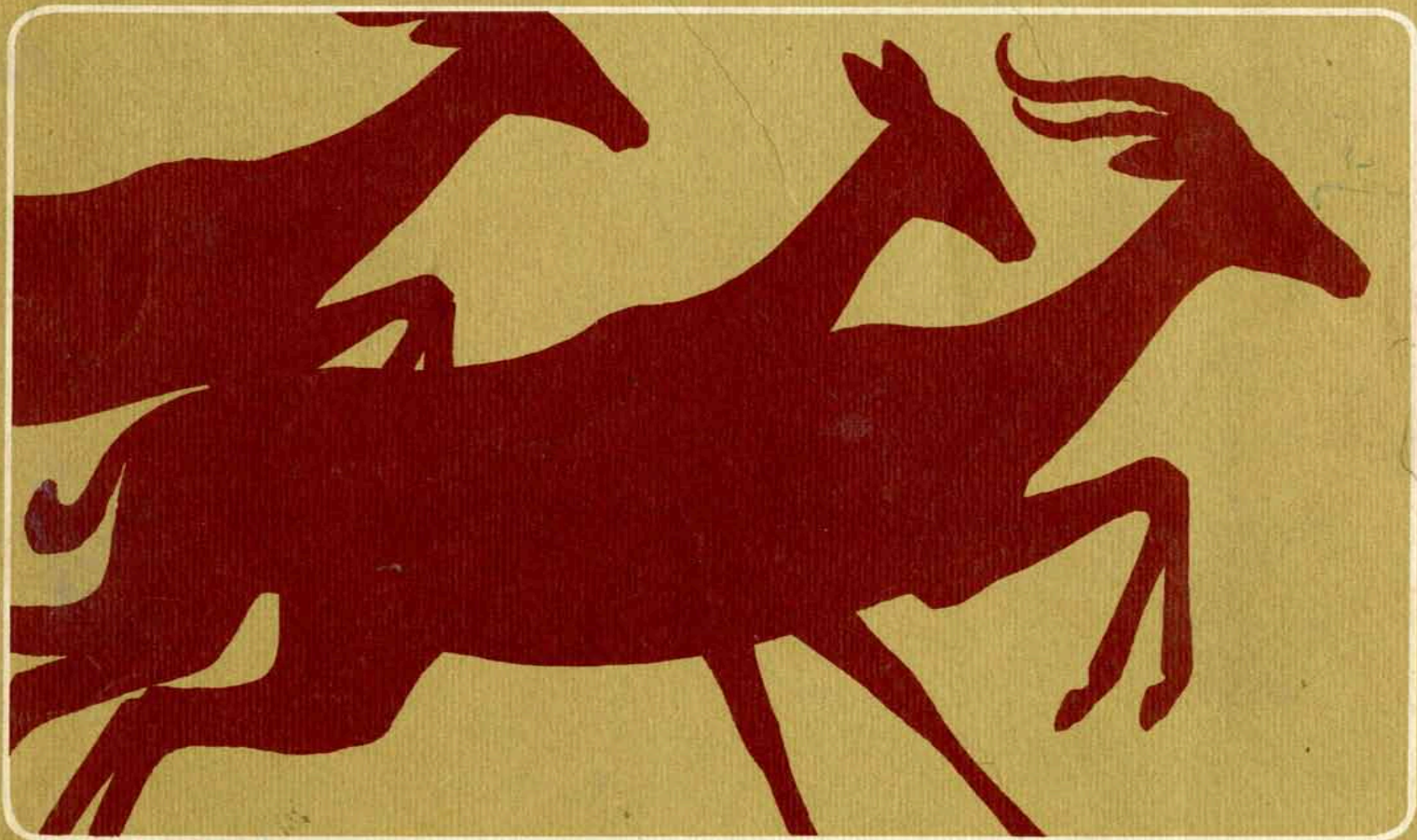


Animals of the African Savanna

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Man: A Course of Study

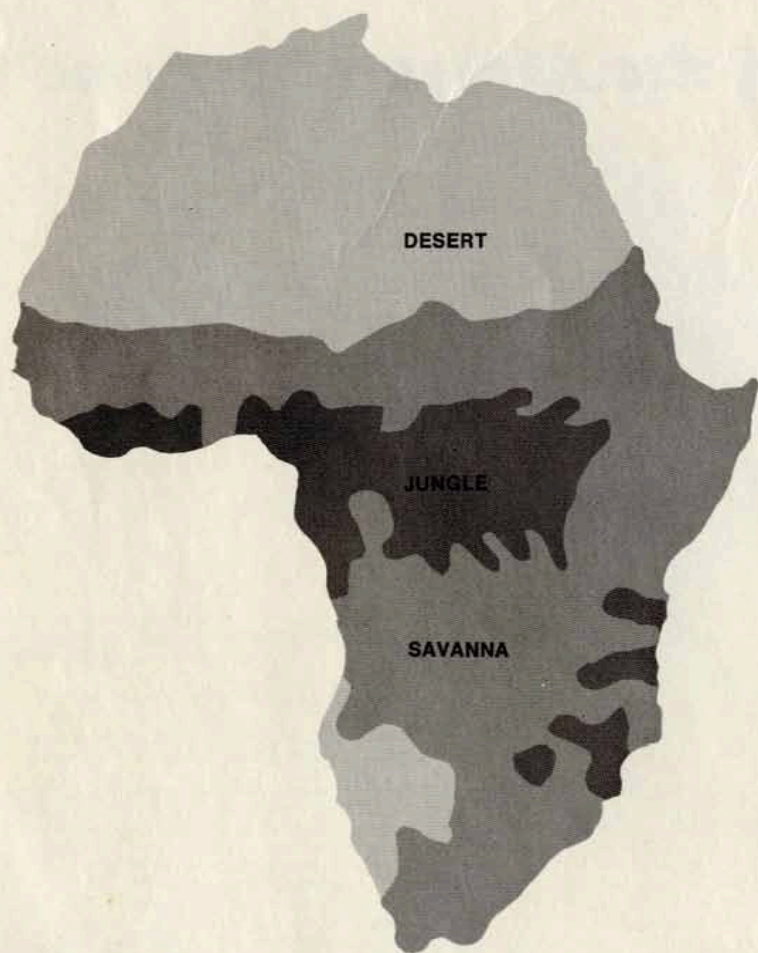
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Animals of the African Savanna



A Puzzle

Why do animals as different as baboons and impalas sometimes spend whole days roaming the plains together in search of food? Why do predators hunt some animals and not others? How is it that the big cats have not eaten up all the smaller animals by now?

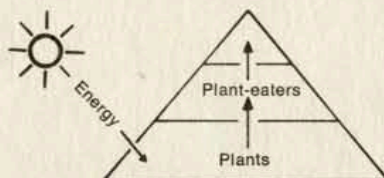
The way animal species live together in the same environment is an exciting puzzle. The main pieces to the puzzle are the climate, the kinds of plants and the kinds of animals that have lived together over a long period of time.

A Community

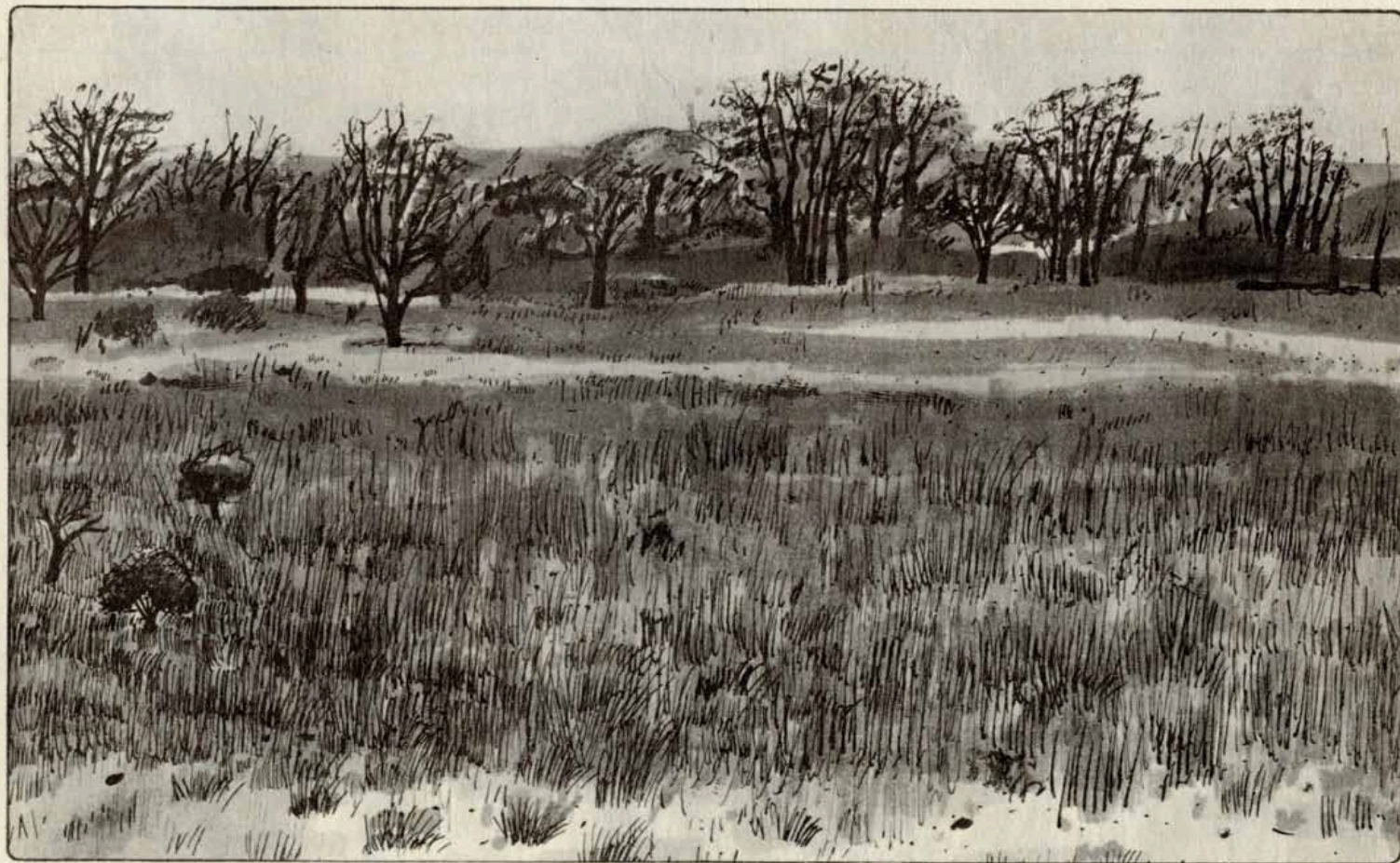
All living things must have energy from the sun to survive. There is in any community of living things a chain of eating and being eaten through which the energy from the sun passes from one form of life to another. Any community is made up of meat-eaters which eat plant-eaters which eat the many kinds of plants.

In the Savanna

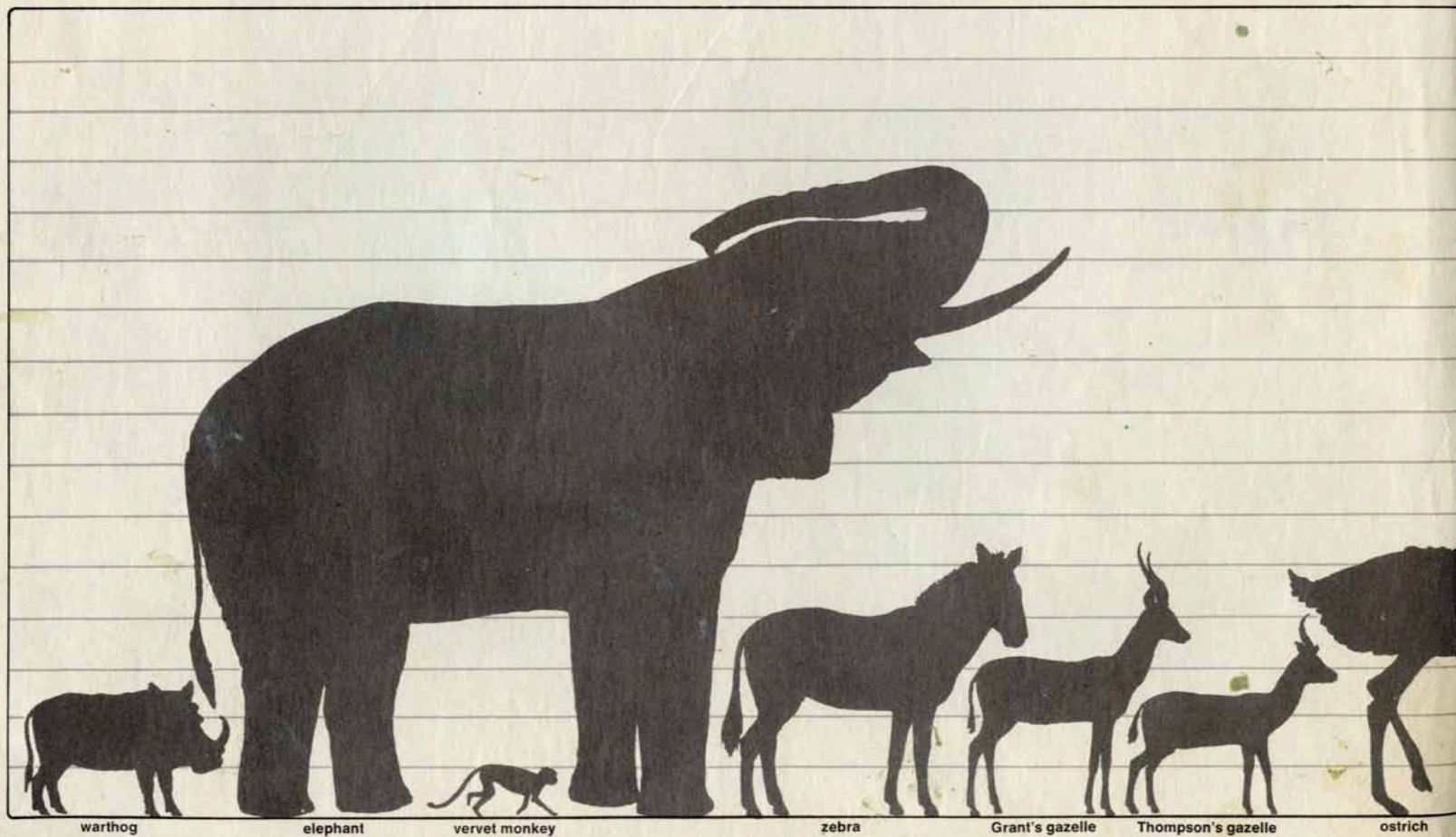
The key to the kind of community of living things found in the savanna is rain. Wild grasses of many kinds grow best where most of the rain in a year falls within a few months. Trees and bushes grow along the banks of streams and rivers, but most of the area is covered with tall grasses.



In this food pyramid, where the base stands for plants, and the middle level shows plant-eaters, what forms the top? Are there more plant-eaters or meat-eaters in a particular environment?

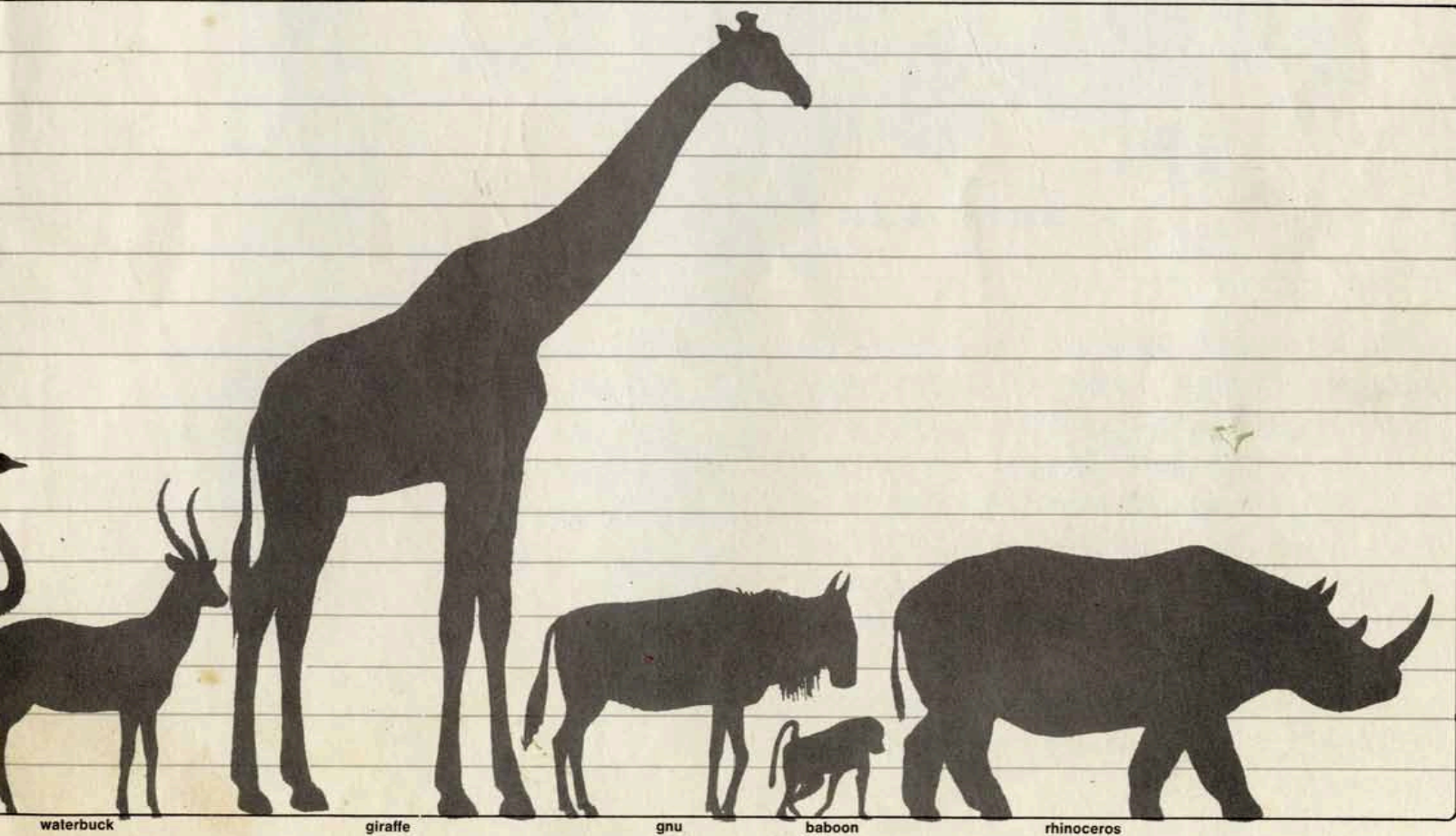


Why might herbivores come in all sizes?



The greatest numbers of animals are the plant-eaters or *herbivores*. Some herbivores eat mainly grass; others eat leaves, flowers, bark, seeds, buds and sap. There are small herbivores (wart-hogs, rabbits, vervet monkeys, baboons) and

huge herbivores (giraffes, rhinoceroses, elephants); but mainly there are the middle-sized herbivores, the hoofed mammals like gnus, gazelles, zebras, waterbucks and water buffaloes.



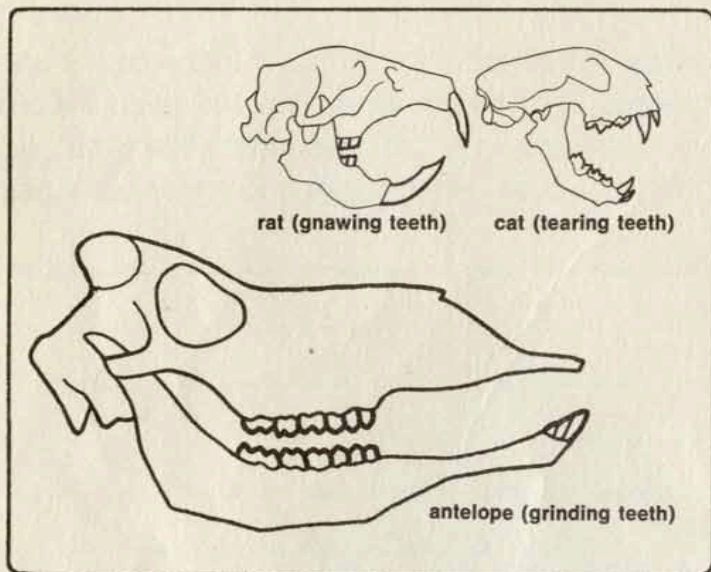
waterbuck

giraffe

gnu

baboon

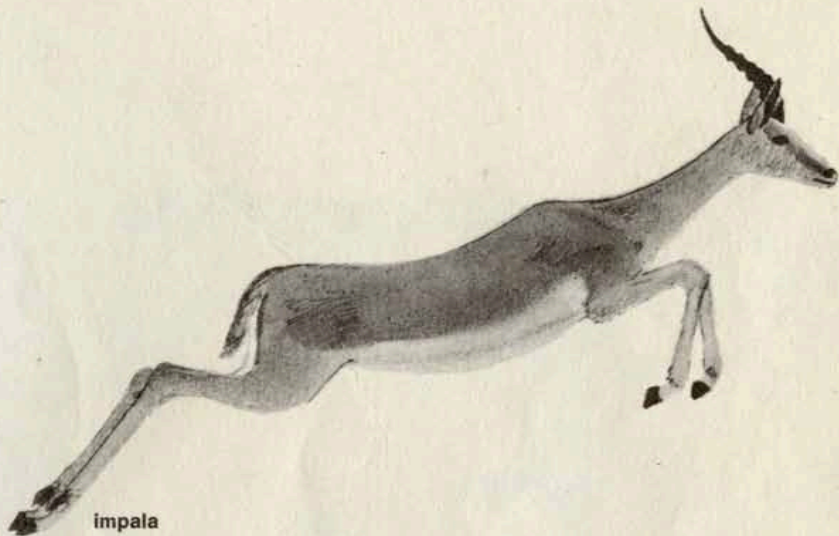
rhinoceros



Both the shape of the animal and its habits are connected with the kind of food it eats. The herbivores have special body structures that suit them for their way of life. Some, like gnus and gazelles, have teeth that are specially suited for eating grass, that is, they have grinding teeth rather than gnawing or tearing teeth. They have the kinds of hoofs and toes that are well adapted to traveling a long distance in search of food and water, and to running very fast. The meat-eaters, or *carnivores*, also have body structures and habits adapted to their ways of life.



Thompson's gazelles



impala

When a community of living things is left to itself, a relationship develops between the plant life, the plant-eaters and the meat-eaters. Each species finds a special place to live, or habitat, and a special way of living. To survive, each type of animal must have its own ways of finding food and water and of protecting itself from danger. For some, safety is a flash of movement when frightened. For

others, it is to stay motionless until the danger has passed. Some types of animals lead solitary lives hidden deep in the woodlands. Others live in a group, surrounded by other members of their species. Because each species has its own special habits and habitat, there is room for many species within the same general environment.

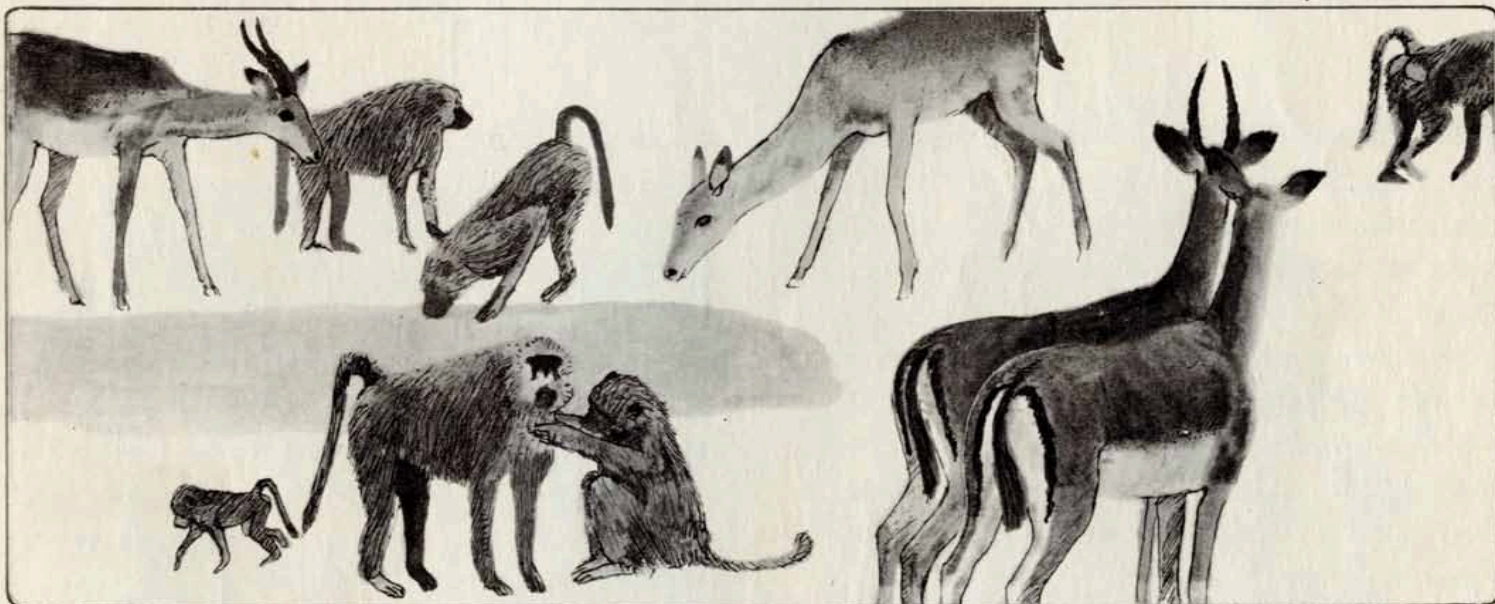
Side by Side

Most animals on the grasslands go their own way without paying much attention to other species. Baboons sit beside giraffes, elephants walk through herds of zebras, waterbucks drink with rhinoceroses standing close by.

Some herbivores help other herbivores to avoid their predators. Giraffes, for instance, are cautious animals and can see far away, over bushes and small trees. If giraffes find it safe to drink at a waterhole, zebras and other animals quickly join them. In this way, giraffes help the others to avoid predators, even though they probably do not know they are helping them.

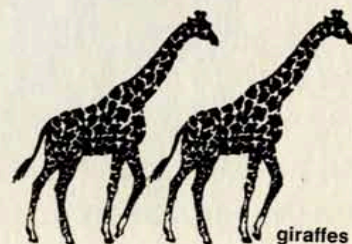
Baboons and impalas each make use of the special abilities of the other in avoiding predators. Baboons have keen eyesight, but their sense of smell is dull. Impalas, on the other hand, cannot see clearly enough to spot a predator that is standing still, but they have very sensitive noses. With the keen eyes of one species and the keen noses of the other, a predator cannot easily surprise a mixed group of baboons and impalas.

impalas and baboons



Other species often seen together are ostriches and gnus. Ostriches are seven to eight feet tall and have sharp eyes, and gnus (like impalas) can smell the approach of predators.

zebras



giraffes

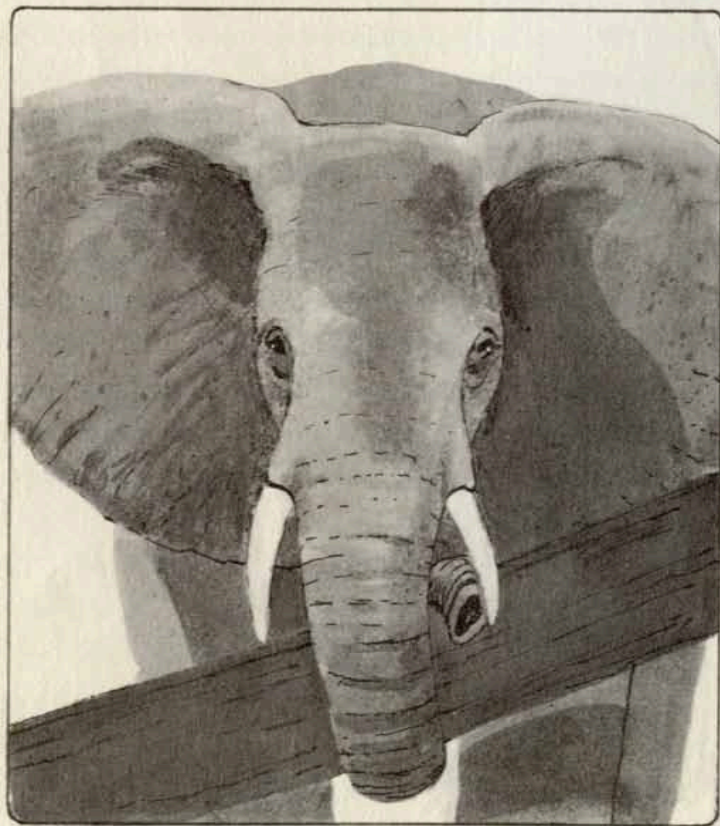
But this is only one way in which animals make use of each other. Between the rains, the grasslands become very dry. A few animals, like Grant's gazelles, survive a dry season because they can get all their water from the plants they eat. But most animals must drink once a day, or every two or three days.

Sometimes the rains do not fall for a year or two, and the rivers and waterholes disappear. At times like these, elephants survive by digging with their trunks in a dried river bed until they find water. This opens up sources of water for other thirsty animals.

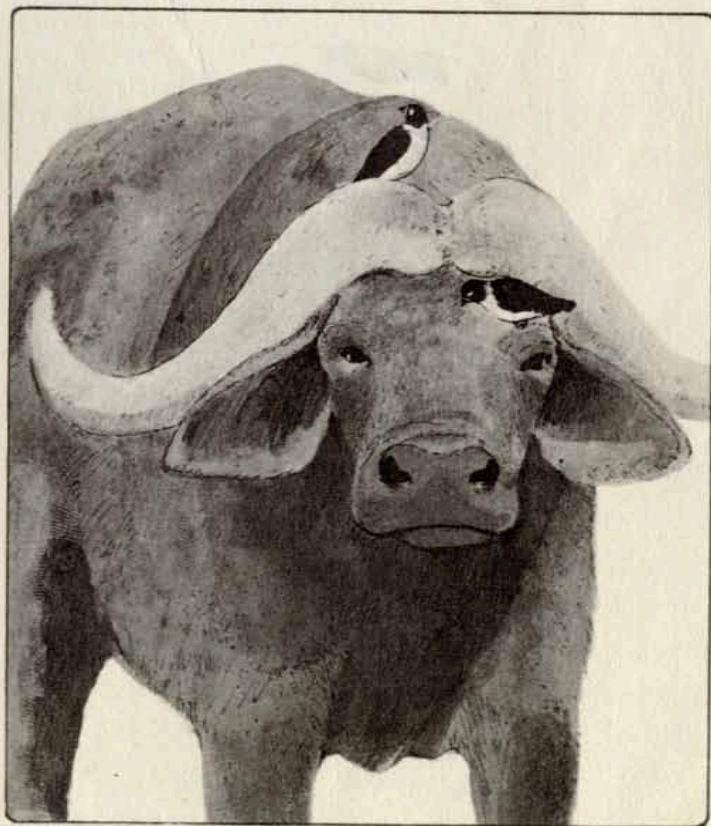
Elephants change their environment in many ways, and other species are quick to take advantage of the changes. When elephants pull up trees and shrubs in getting food, impalas and waterbucks use the openings in the trees as paths into the dense woodlands. Warthogs thrive on the fruit

shaken down by elephants and monkeys, and monkeys enjoy the sap from trees where elephants have stripped the bark.

Other animals make use of each other in even more direct ways. Oxpeckers are constant companions of water buffaloes, because they feed off the ticks that live on the buffaloes. This is a two-sided relationship. Water buffaloes get rid of the bugs. And the shrill calls of the excited, keen-eyed oxpeckers in times of danger warn the buffaloes, which have very poor eyesight.



elephant



water buffalo and oxpeckers

Predators and Their Prey

To understand how a community continues over the years, we must realize that the carnivores hunt when they are hungry. Generally, they lie around doing nothing very active.

But if the carnivores kill too many of the plant-eaters, the young of the meat-eaters will starve. There will be fewer meat-eaters then, and a new relation between herbivores and carnivores will be established. On the other hand, if many of the meat-eaters in an area were shot, there would be too many plant-eaters eating from the same amount of grass. Some would die of starvation, and eventually there would be the right number of herbivores for the grass available.

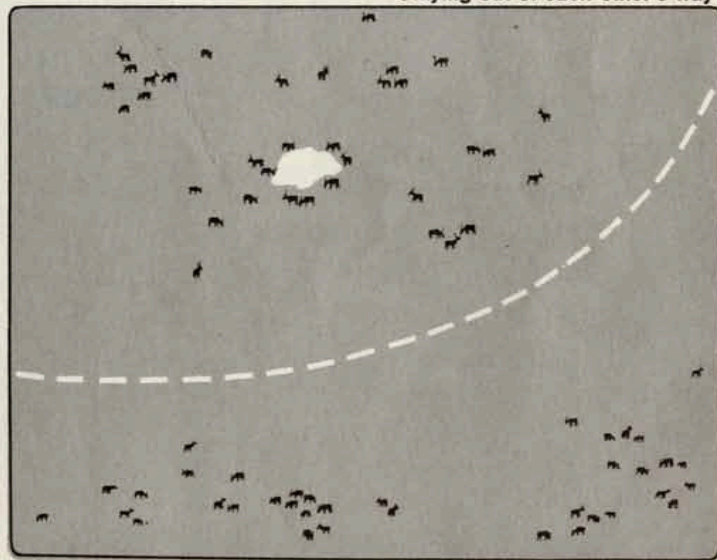
Competition?

Even with meat-eaters around keeping the population of plant-eaters down, how can so many different kinds of herbivores live in the same surroundings, all eating plants? Must they fight over a nice clump of bushes? Do they compete over a patch of grass?

One of the reasons that many similar species can live peacefully in the same community is that they come in different sizes. Partly because of this, each type of animal lives in a certain habitat of the environment and has a special way of living. We call this combination of habitat and the habits of a species a *niche*. Because animals over time have found different niches in the same environment, they do not compete with each other often for food and water. If two species compete for a certain kind of food, that food disappears and then both species must find another source of food. Animal species that do not compete for food are more likely to survive than those that do.

Gazelles and waterbucks are a good example of

Staying out of each other's way



similar species with different niches in the same general area. Grant's gazelles can live without drinking water, and they usually find their food on the open plain. Waterbucks live close to water, eating the many plants surrounding waterholes and streams. In this way, Grant's gazelles and waterbucks stay out of each other's way, and both species get enough to eat.

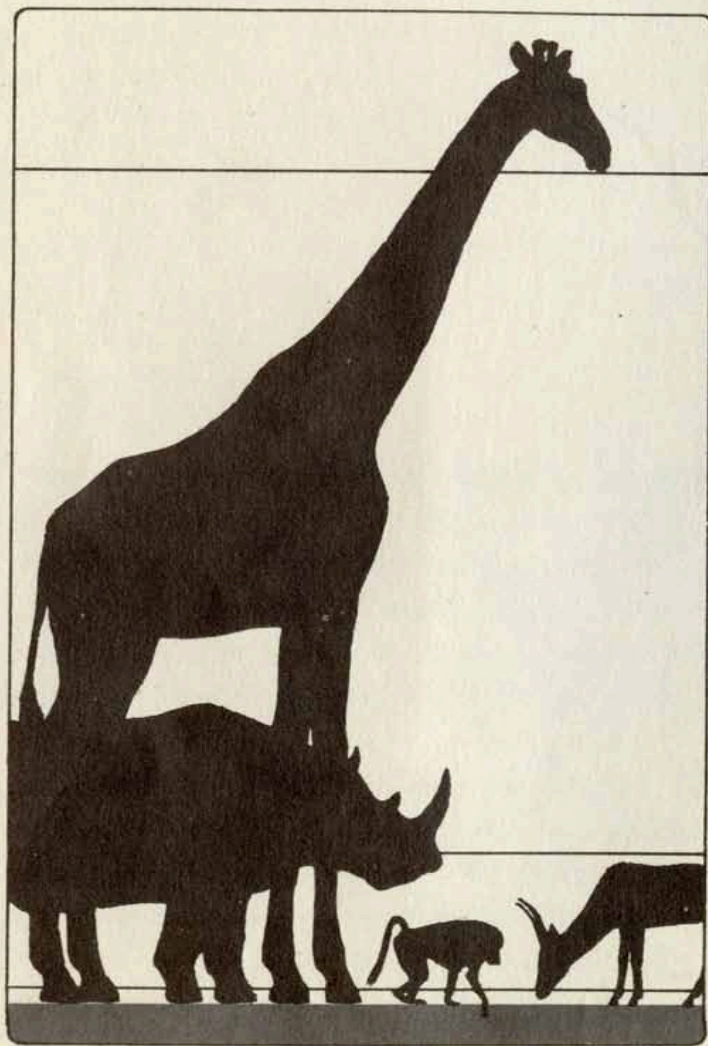
Or Sharing?

Some animals eat grass when it is short, some only when it is long. Gazelles eat plants close to the ground, rhinoceroses eat from the middle level, and giraffes from the tops of trees. Because these animals eat plants of different heights, they avoid competition for the same food.

Impalas crop grass very close to the ground. This might leave the grass-eating baboons without enough to eat in the dry season, except for the fact that baboons can then dig for and eat roots. In this way, baboons and impalas can share the same environment even in the dry season.

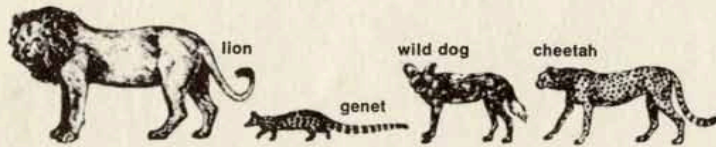
Then, too, different species eat different plants: rhinoceroses eat thornbushes, impalas graze on young shoots of grass, buffaloes eat coarser grasses. To find different plants some herbivores live in different habitats: some stay on the open plains, some keep close to the scattered trees, and others depend on being in dense woodlands or forest for their special foods as well as for safety.

Some animals, like elephants and baboons, eat many types of plants. They can change from one type of diet to another depending on the season and what foods are most plentiful. Animals that



have a special diet may have the least competition from other animals in finding food. But animals that need special foods have a hard time of it if their supply of food disappears because the environment is gradually changing.

Different ways of escaping danger from predators also keep similar kinds of animals in different areas of the landscape. Those animals that escape by speed are safer on the open plains, and those that hide from predators are more likely to be found in the dense woodlands. Animals that avoid predators by climbing trees usually stay close to trees.



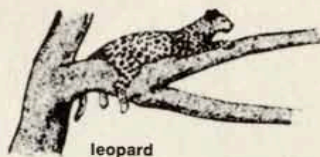
Why might carnivores come in all sizes too?

Similar Predators in the Same Niches?

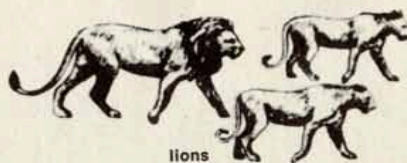
Predators that are much alike also have special niches in the same environment. The great predators of the African savanna are lions, leopards, cheetahs and wild hunting dogs. Each finds its food in a special way and each has its own way of

living. Lions and leopards hunt mainly in the evening, but wild dogs and cheetahs hunt mostly during the day. Competition for food is less because some predators hunt by day, some by night.

But what keeps the nighttime hunters, the lions and the leopards, from getting in each other's way in the struggle to find food? Leopards hunt alone and usually hunt small herbivores like impalas and baboons. Lions, on the other hand, often hunt together and go after bigger prey like gnus, zebras and sometimes giraffes. Leopards usually live in the dense brush along rivers and waterholes, while lions do most of their hunting in more open country.



leopard



lions



cheetah

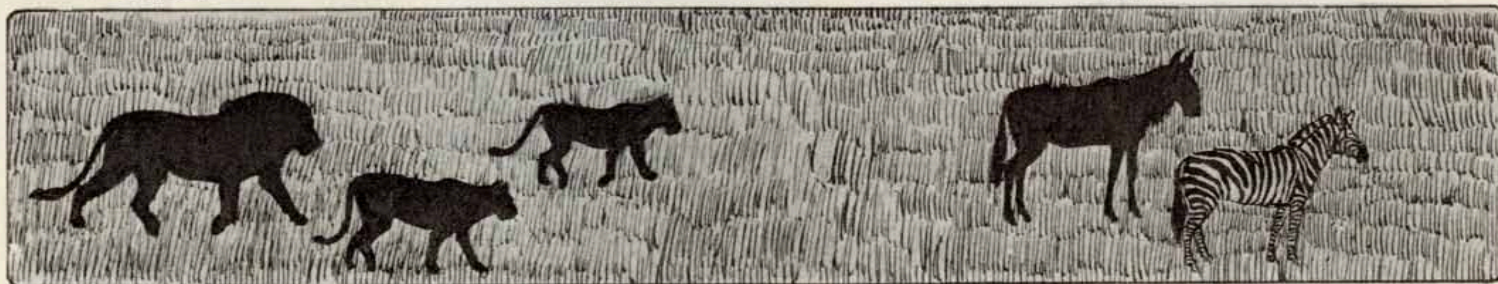
What behaviors help each of these cats catch their prey in a special way?



leopard

impala

baboon



lions

gnu

zebra

Special Habits and Special Habitats

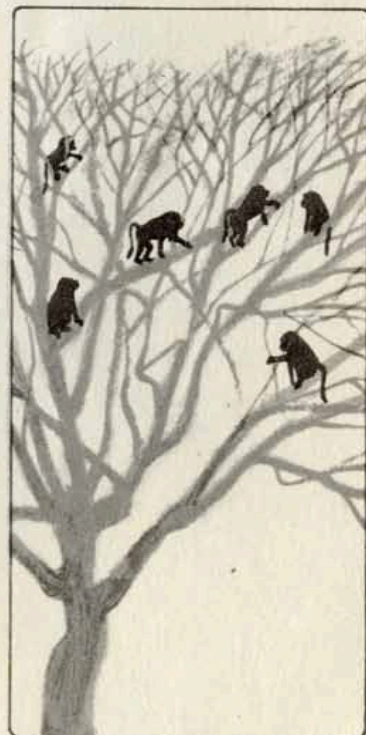
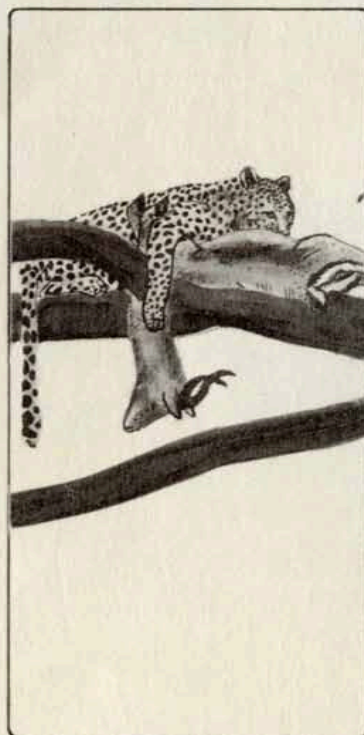
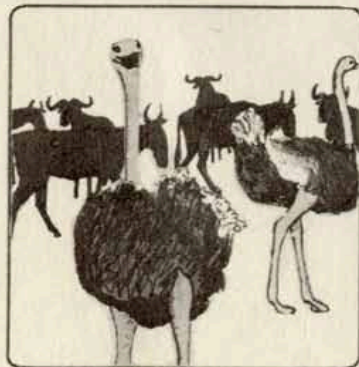
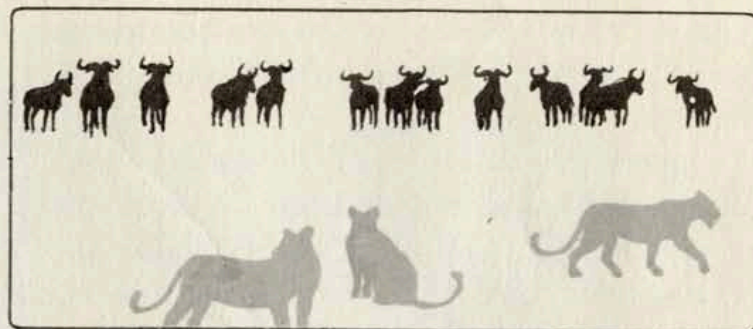
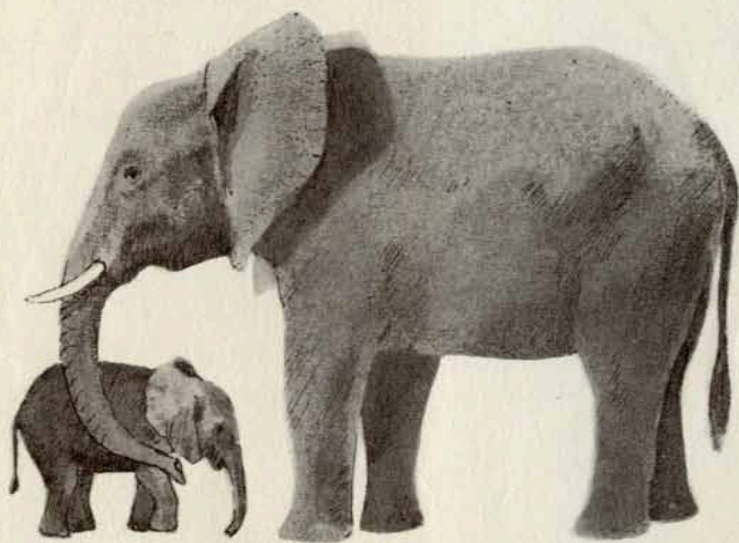
Over the years, each animal species becomes adapted to survive in an environment in a special way, both in its structure and its behavior. We can easily see how an animal is adapted to its environment through structures of the body such as hoofs or teeth or claws or horns or the pattern of its fur.

More difficult, but just as important, is to see how animals adapt to their environment through special ways of behaving. Some animals travel alone, some in groups. Some animals carry their offspring with them when they travel. Others hide them in sheltered spots until they return. Some animals store food to eat another day, while others must find a new supply each day. As the seasons change, some species travel to different parts of the environment. In this way, each species develops its own special way of behaving in its environment.

Through special body structures and through special ways of behaving, over years animal species become dependent on a certain general type of habitat. Some animals are more closely tied to a habitat than others.

In the African savanna, there are three main types of habitat: open grasslands, scattered trees

Special ways of behaving



and woodlands. Some animals are tied to one, some to another; others can move freely from one habitat to another.

The chart on the next page shows the amount of time an animal species is found in a certain part of the savanna. The animals that are shown here as never going into the woodlands do go there to drink at waterholes, but they do not stay long.

Which animals do you think are most closely tied to one habitat?

Man's Habitat

Where would man fit on the chart? Think of all the different types of environments there are around the world. Can most animal species move easily from one to another? Can man?

	OPEN GRASSLANDS	GRASS, SCATTERED TREES	WOODLANDS
HERBIVORES			
Grant's gazelle			
Thompson's gazelle			
gnu			
zebra			
buffalo			
giraffe			
impala			
warthog			
rhino			
elephant			
baboon			
waterbuck			
CARNIVORES			
cheetah			
hunting dog			
lion			
leopard			

