

Directions:

Read the following text carefully and then translate the underlined segments into Chinese. Write your answers on the ANSWER SHEET. (10 points)

"Elephants never forget"—or so they say—and that piece of folklore seems to have some foundation.

The African savanna elephant, also known as the African bush elephant, is distributed across 37 African countries. They move between a variety of habitats, including forests, grasslands, woodlands, wetlands and agricultural land. (46)They sometimes travel more than sixty miles to find food or water, and are very good at working out where other elephants are—even when they are out of sight. Using tracking devices, researchers have shown that they have "remarkable spatial acuity." When finding their way to waterholes, they headed off in exactly the right direction, on one occasion from a distance of roughly thirty miles. What is more, they almost always seem to choose the nearest waterhole. (47)The researchers are convinced that the elephants always know precisely where they are in relation to all the resources they need, and can therefore take shortcuts, as well as following familiar routes.

Although the cues used by African elephants for long-distance navigation are not yet understood, smell may well play a part.

Elephants are very choosy eaters, but until recently little was known about how they selected their food. (48)One possibility was that they merely used their eyes and tried out the plants they found, but that would probably result in a lot of wasted time and energy, not least because their eyesight is actually not very good.

(49)The volatile chemicals produced by plants can be carried a long way, and they are very characteristic: Each plant or tree has its own particular odor signature. What is more, they can be detected even when they are not actually visible. New research suggests that smell is a crucial factor in guiding elephants—and probably other herbivores—to the best food resources.

The researchers first established what kinds of plant the elephants preferred either to eat or avoid when foraging freely. They then set up a "food station" experiment, in which they gave the elephants a series of choices based only on smell. (50)The experiment showed that elephants may well use smell to identify patches of trees that are good to eat, and secondly to assess the quality of the trees within each patch. Free-ranging elephants presumably also use this information to locate their preferred food.

Their well-developed hippocampal structures may enable elephants, like rats and people, to construct cognitive maps.