tpo_28_passage_2

A conspicuous sign indicating the presence of white-tailed deer in a woodlot is a buck rub. A male deer makes a buck rub by stripping the bark (outer layer) of a small tree with its antlers. When completed, the buck rub is an obvious visual signal to us and presumably to other deer in the area. A rub is usually located at the shoulder height of a deer (one meter or less above the ground) on a smooth-barked, small-diameter (16–25 millimeters) tree. The smooth bark of small red maples makes this species ideal for buck rubs in the forests of the mid-eastern United States. Adult male deer usually produce rubs in late summer or early autumn when the outer velvet layer is being shed from their antlers. Rubs are created about one to two months before the breeding season (the rut). Hence for a long time biologists believed that male deer used buck rubs not only to clean and polish antlers but also to provide practice for the ensuing male-to-male combat during the rut. However, biologists also noted that deer sniff and lick an unfamiliar rub, which suggests that this visual mark on a small tree plays an important communication purpose in the social life of deer. Buck rubs also have a scent produced by glands in the foreheads of deer that is transferred to the tree when the rub is made. These odors make buck rubs an important means of olfactory communication between deer. The importance of olfactory communication (using odors to communicate) in the way of life of deer was documented by a study of captive adult mule deer a few decades ago, which noted that males rubbed their foreheads on branches and twigs, especially as autumn approached. A decade later another study reported that adult male white-tailed deer exhibited forehead rubbing just before and during the rut. It was found that when a white-tailed buck makes a rub, it moves both antlers and forehead glands along the small tree in a vertical direction. This forehead rubbing behavior coincides with a high level of glandular activity in the modified scent glands found on the foreheads of male deer; the glandular activity causes the forehead pelage (hairy covering) of adult males to be distinctly darker than in females or younger males. Forehead rubbing by male deer on buck rubs presumably sends a great deal of information to other members of the same species. First, the chemicals deposited on the rub provide information on the individual identity of an animal; no two mammals produce the same scent. For instance, as we all know, dogs recognize each other via smell. Second, because only male deer rub, the buck rub and its associated chemicals indicate the sex of the deer producing the rub. Third, older, more dominant bucks produce more buck rubs and probably deposit more glandular secretions on a given rub. Thus, the presence of many well-marked rubs is indicative of older, higher-status males being in the general vicinity rather than simply being a crude measure of relative deer abundance in a given area. The information conveyed by the olfactory signals on a buck rub make it the social equivalent of some auditory signals in other deer species, such as trumpeting by bull elk. Because both sexes of whitetails respond to buck rubs by smelling and licking them, rubs may serve a very important additional function. Fresher buck rubs (less than two days old), in particular, are visited more frequently by adult females than older rubs. In view of this behavior it has been suggested that chemicals present in fresh buck rubs may help physiologically induce and synchronize fertility in females that visit these rubs. This would be an obvious advantage to wide-ranging deer, especially to a when courting several adult females during the autumn rut. Another visual signal produced by white-tailed deer is termed a buck scrape. Scrapes consist of a clearing (about 0.5 meter in diameter) and shallow depression made by

pushing aside the leaves covering the ground; after making the scrape, the deer typically urinates in the depression. Thus, like a buck rub, a scrape is both a visual and an olfactory signal. Buck scrapes are generally created after leaf-fall in autumn, which is just before or during the rut. Scrapes are usually placed in open or conspicuous places, such as along a deer trail. Most are made by older males, although females and younger males (2.5 years old or less) occasionally make scrapes.

question 1

According to paragraph 1, why are small red maple trees ideal for buck rubs?

A They have smooth bark.

B They are found in the mid-eastern United States.

C They grow very slowly.

D They tend to grow in open spaces.

question 2

The studies of forehead rubbing by deer described in paragraph 3 showed that

A forehead rubbing encourages the growth of antlers

B mule deer and white-tailed deer behave differently during the rut

C the rut can occur at different times of the year

D deer convey important information through scent

question 3

The word “exhibited” in the passage is closest in meaning to

A relied on

B increased

C displayed

D preferred

question 4

Why does the author mention that “dogs recognize each other via smell” ?

A To point out the similarities between dogs and deer

B To argue that animals communicate through scent rather than through vision

C To support the claim that the scent of a buck rub serves to identify its maker to other deer

D To suggest that buck rubs can be detected by other species

question 5

The word “crude” in the passage is closest in meaning to

A rough

B useful

C necessary

D obvious

question 6

According to paragraph 5, which of the following is true about chemicals in buck rubs?

A They have to be at least two days old for females to be able to detect them.

B They are more effective in older buck rubs than in fresher ones.

C They may affect fertility in female deer.

D They can be more easily detected by young males than adult females.

question 7

The word “termed” in the passage is closest in meaning to

A associated with

B visible as

C known as

D provided by

question 8

According to the passage, in what way do buck scrapes differ from buck rubs?

A Buck scrapes are made by both male and female deer.

B Buck scrapes are purely visual signals.

C Buck scrapes are made closer to the breeding season than buck rubs.

D Buck scrapes can be smelled only by deer.

question 9

Look at the four squares [ ] that indicate where the following sentence could be added to the passage.

A conspicuous sign indicating the presence of white-tailed deer in a woodlot is a buck rub. [] A male deer makes a buck rub by stripping the bark (outer layer) of a small tree with its antlers. [] When completed, the buck rub is an obvious visual signal to us and presumably to other deer in the area. [] A rub is usually located at the shoulder height of a deer (one meter or less above the ground) on a smooth-barked, small-diameter (16–25 millimeters) tree. [] The smooth bark of small red maples makes this species ideal for buck rubs in the forests of the mid-eastern United States. Adult male deer usually produce rubs in late summer or early autumn when the outer velvet layer is being shed from their antlers. Rubs are created about one to two months before the breeding season (the rut). Hence for a long time biologists believed that male deer used buck rubs not only to clean and polish antlers but also to provide practice for the ensuing male-to-male combat during the rut. However, biologists also noted that deer sniff and lick an unfamiliar rub, which suggests that this visual mark on a small tree plays an important communication purpose in the social life of deer. Buck rubs also have a scent produced by glands in the foreheads of deer that is transferred to the tree when the rub is made. These odors make buck rubs an important means of olfactory communication between deer. The importance of

olfactory communication (using odors to communicate) in the way of life of deer was documented by a study of captive adult mule deer a few decades ago, which noted that males rubbed their foreheads on branches and twigs, especially as autumn approached. A decade later another study reported that adult male white-tailed deer exhibited forehead rubbing just before and during the rut. It was found that when a white-tailed buck makes a rub, it moves both antlers and forehead glands along the small tree in a vertical direction. This forehead rubbing behavior coincides with a high level of glandular activity in the modified scent glands found on the foreheads of male deer; the glandular activity causes the forehead pelage (hairy covering) of adult males to be distinctly darker than in females or younger males. Forehead rubbing by male deer on buck rubs presumably sends a great deal of information to other members of the same species. First, the chemicals deposited on the rub provide information on the individual identity of an animal; no two mammals produce the same scent. For instance, as we all know, dogs recognize each other via smell. Second, because only male deer rub, the buck rub and its associated chemicals indicate the sex of the deer producing the rub. Third, older, more dominant bucks produce more buck rubs and probably deposit more glandular secretions on a given rub. Thus, the presence of many well-marked rubs is indicative of older, higher-status males being in the general vicinity rather than simply being a crude measure of relative deer abundance in a given area. The information conveyed by the olfactory signals on a buck rub make it the social equivalent of some auditory signals in other deer species, such as trumpeting by bull elk. Because both sexes of whitetails respond to buck rubs by smelling and licking them, rubs may serve a very important additional function. Fresher buck rubs (less than two days old), in particular, are visited more frequently by adult females than older rubs. In view of this behavior it has been suggested that chemicals present in fresh buck rubs may help physiologically induce and synchronize fertility in females that visit these rubs. This would be an obvious advantage to wide-ranging deer, especially to a when courting several adult females during the autumn rut. Another visual signal produced by white-tailed deer is termed a buck scrape. Scrapes consist of a clearing (about 0.5 meter in diameter) and shallow depression made by pushing aside the leaves covering the ground; after making the scrape, the deer typically urinates in the depression. Thus, like a buck rub, a scrape is both a visual and an olfactory signal. Buck scrapes are generally created after leaf-fall in autumn, which is just before or during the rut. Scrapes are usually placed in open or conspicuous places, such as along a deer trail. Most are made by older males, although females and younger males (2.5 years old or less) occasionally make scrapes.

question 10

Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

A. The observation that deer sniff and lick buck rubs first led scientists to connect

buck rubs with combat between adult males during the breeding season.

B. As they rub the bark from trees, male deer leave behind chemicals produced by the glands in their foreheads, creating a scent that other deer can detect.

C. Buck rubs and buck scrapes are visual signals and smells that deer use to communicate a variety of information to other deer.

D. The height of a buck rub, the type of tree used, and the direction in which the deer applies the rub can give different kinds of information to other deer.

E. The number of buck rubs and buck scrapes in a given area changes as the density of the population of male deer in the area changes.

F. Buck rubs are created close to the breeding season of deer and may affect the timing of fertility in the female deer that visit the rubs.