

# MOUSE-DEER







**mouse-deer -**  
**мышинный олень**

[maʊs-djə]



**fanged deer - водяной**  
**мышинный олень**

[fæŋd djə]



**Indian spotted**  
**chevrotain -**  
**индийский пятнистый**  
**мышинный олень**

['ɪndjən 'spɒtɪd chevrotain]



**Sri Lankan spotted chevrotain - Шри-ланкийский водяной олень**

[sri 'lænkən 'spɒtɪd chevrotain]



**yellow-striped chevrotain - жёлто-полосатый мышинный олень**

[ 'jeləʊ-strəɪpt chevrotain]



**Java mouse-deer - Яванский мышинный олень**

[ 'dʒɑ:və maʊs-dɪə]



**lesser mouse-deer -**  
карликовый мышиный  
олень

[ˈlesə maʊs-diə]



**greater mouse-deer -**  
большой мышиный  
олень

[ˈgreɪtə maʊs-diə]



**Philippine mouse-deer**  
- Филиппинский  
мышиный олень

[ˈfɪlɪpiːn maʊs-diə]



**Vietnam mouse-deer -**  
**Вьетнамский**  
**мышинный олень**

**['vjet'nɑ:m maʊs-dɪə]**



## Mouse-deer



**Chevrotains, or mouse-deer, are small even-toed ungulates that make up the family Tragulidae, the only extant members of the infraorder Tragulina. The 10 extant species are placed in three genera, but several species also are known only from fossils. The extant species are found in forests in South and Southeast Asia, with a single species, the water chevrotain, in the rainforests of Central and West Africa. They are solitary or live in pairs, and feed almost exclusively on plant material. Chevrotains are the smallest hoofed mammals in the world. The Asian species weigh between 0.7 and 8.0 kg, while the African chevrotain is considerably larger at 7-16 kg. With an average length of 45 cm and an average height of 30 cm, the Java mouse-deer is the smallest extant (living) ungulate or hoofed mammal, as well as the smallest extant even-toed ungulate.**

**The family was widespread and successful from the Oligocene (34 million years ago) through the Miocene (about 5 million years ago), but has remained almost unchanged over that time and remains as an example of primitive ruminant form. They have four-chambered stomachs to ferment tough plant foods, but the third chamber is poorly developed. Though most species feed exclusively on plant material, the water chevrotain occasionally takes insects and crabs or scavenges meat and fish. Like other ruminants, they lack upper incisors. They give birth to only a single young.**

**In other respects, however, they have primitive features, closer to nonruminants such as pigs. All species in the family lack antlers and horns, but both sexes have elongated canine teeth. These are especially prominent in males, where they project out on either side of the lower jaw, and are used in fights.**



Their legs are short and thin, which leave them lacking in agility, but also helps to maintain a smaller profile to aid in running through the dense foliage of their environments. Other pig-like features include the presence of four toes on each foot, the absence of facial scent glands, premolars with sharp crowns, and the form of their sexual behaviour and copulation.

They are solitary or live in pairs. The young are weaned at three months of age, and reach sexual maturity between 5 and 10 months, depending on species. Parental care is relatively limited. Although they lack the types of scent glands found in most other ruminants, they do possess a chin gland for marking each other as mates or antagonists, and, in the case of the water chevrotain, anal and preputial glands for marking territory. Their territories are relatively small, on the order of 13-24 hectares (32-59 acres), but neighbors generally ignore each other, rather than compete aggressively.

Some of the species show a remarkable affinity with water, often remaining submerged for prolonged periods to evade predators or other unwelcome intrusions. This has also lent support to the idea that whales evolved from water-loving creatures that looked like small deer.

## Fanged deer



The water chevrotain, also known as the fanged deer, is a small ruminant found in tropical Africa. It is the largest of the 10 species of chevrotains, basal even-toed ungulates which are similar to deer, but are barely larger than small dogs.

Unusually for most mammals, female water chevrotains are larger than males. On average, they weigh over 2 kg more than the 10-kg males. Their body length is about 85 cm, and their shoulder height is around 35 cm. Water chevrotains have a rich, sleek, red-brown coat on top, and the underside of the coat is white. On the body is a pattern of white stripes that runs horizontally from the shoulder to the tail, with vertical rows of white stripes in the back. The chin, throat, and chest are covered in very coarse hair with a pattern of white V shapes. The back end of the water chevrotain has many powerful muscles and is higher than the shoulders, which makes the body slope down toward the front. The head is held down toward the ground while walking, which allows the water chevrotain to navigate easily through thickets of dense brush. A layer of thick, reinforced skin is on the dorsal surface, which protects the back from injuries caused by the thick brush. The legs look short and thin compared to the bulky body, and the hooves are similar to a pig's. The tail is short with a fluffy white underside that resembles a cotton ball.

The water chevrotain is endemic to the tropical regions of Africa. While it primarily lives in the coastal regions, the species can be found from Sierra Leone to western Uganda. They can be found in closed-canopy, moist, tropical lowland forest, and within this habitat, they only occupy areas within close range to streams or rivers. The area is rarely inhabited by the species if it is further than 250 m away from water. During the day, chevrotains cannot be found outside of the dense forest, but at night, they can be observed in exposed clearings and open river banks.

The water chevrotain is exclusively nocturnal, and forages for food in clearings at night. Fallen fruits, such as figs, palm nuts, and breadfruit make up the majority of the water chevrotain's diet, although it has also been known to feed on insects, crabs, and scavenged meat and fish, and is the only species of chevrotain known to do so. It relies on its sense of smell to locate food. During the day, the water chevrotain hides in the dense cover of the African brush. The resting postures of the species include lying down and sitting up. Because they are such a solitary species, the interactions between water chevrotains are only antagonistic and reproductive encounters. Males fight other males, mainly over territory. Their fights are typically short, and in them the two competing males run at each other, mouths open. They poke each other with their muzzles and bite. These aggressive fights are thought to be the reason that mature males normally live no closer than several kilometers apart. The water chevrotain makes several different noises, which include a scream when injured/wounded and an alarm bark. When females fight, they make a high-pitched chattering noise, and when pursuing a female, a male makes a noise through a closed mouth.

## Indian spotted chevrotain



The Indian spotted chevrotain is a species of even-toed ungulate in the family Tragulidae. It is native to India and possibly Nepal. It lives in rainforests and is nocturnal. It has a body length of 57.5 cm with a 2.5 cm long tail length and weighs around 3 kg. This was earlier included under the name of *Tragulus meminna*, but studies on the systematics of the group have led to that name being restricted to the Sri Lankan spotted chevrotain.

## Sri Lankan spotted chevrotain



**Moschiola meminna** is a species of even-toed ungulate in the chevrotain family (Tragulidae). Particularly in the old literature, *M. meminna* often refers to the spotted chevrotains as a whole. Today, the name is increasingly restricted to the Sri Lankan spotted chevrotain or white-spotted chevrotain, with the Indian spotted chevrotain *M. Indica* and the yellow-striped chevrotain *M. kathygre* treated as distinct species.

In Sri Lanka, this species is found in the dry zone and is replaced in the wet zone by the yellow-striped chevrotain.

Head and body length in the species typically is 55–60 cm. It is dull brown in color with three or four dotted white stripes going longitudinally along flank.



## Yellow-striped chevrotain



The yellow-striped chevrotain is a species of chevrotain described in 2005. It is found in the wet zones of Sri Lanka. It was recognized as a species distinct from *Moschiola meminna* based on the phylogenetic species concept.

Head and body length in the species is typically 43–51 cm. Dorsally, it is a warm yellowish brown in color with at least two light yellow stripes longitudinally along flanks separated by a row of light yellow spots. Two distinct stripes along back plus another below the tail, all are pale yellow in color. Fur is fine and coarse. Tusk-like upper canines are visible in males.

## Java mouse-deer



The Java mouse-deer is a species of even-toed ungulate in the family Tragulidae. When it reaches maturity it is about the size of a rabbit, making it the smallest living ungulate. It is found in forests in Java and perhaps Bali, although sightings there have not been verified.

Mouse-deer possess a triangular-shaped head, arched back, and round body with elevated rear quarters. The thin, short legs which support the mouse-deer are about the diameter of an average pencil. Although Java mouse-deer do not possess antlers or horns like regular deer, male Java mouse-deer have elongated, tusk-like upper canines which protrude downward from the upper jaw along the sides of their mouth. Males use these "tusks" to defend themselves and their mates against rivals. Females can be distinguished from males because they lack these prominent canines, and they are slightly smaller than the males. Java mouse-deer can furthermore be distinguished by their lack of upper incisors. The coat coloration of the Java mouse-deer is reddish-brown with a white underside. Pale white spots or vertical markings are also present on the animal's neck.

With an average length of 45 cm and an average height of 30 cm, the Java mouse-deer is the smallest extant (living) ungulate or hoofed mammal, as well as the smallest extant even-toed ungulate. The weight of the Java mouse-deer ranges from 1 to 2 kilograms, with males being heavier than females. It has an average tail length of about 5. Mouse-deer are thought to be the most primitive ruminants based on their behaviour and the fossil record, thus they are the living link between ruminants and non-ruminants.

The Java mouse-deer prefers habitats of higher elevations and the tropical forest regions of Java, although it does appear at lower elevations between 400–700 metres above sea level. During the day, Java mouse-deer can be seen roaming in crown-gap areas with dense undergrowth of creeping bamboo, through which they make tunnels through the thick vegetation which lead to resting places and feeding areas. At night, the Java mouse-deer moves to higher and drier ridge areas. It has been argued that Java mouse-deer are an “edge” species, favoring areas of dense vegetation along riverbanks. Additionally, Java mouse-deer have been found to be more prevalent in logged areas than in the more mature forests, and their densities tended to decrease proportionately as the logged forests matured.

Java mouse-deer are primarily herbivores, although in captivity they have been observed to eat insects as well as foliage. Their diet consists primarily of that which they find on the ground in the dense vegetation they inhabit, and they prefer the plants of the faster-growing gap species over the closed forest understory species, likely due to the increased richness of secondary protective compounds which the gap species provide. They are often classified as folivores, eating primarily leaves, shrubs, shoots, buds, and fungi, in addition to fruits which have fallen from trees. The fruits which Java mouse-deer commonly consume range from 1–5 grams, while the seeds range from 0.01–0.5 g.

## Lesser mouse-deer



**The lesser mouse-deer, lesser Malay chevrotain, or kanchil is a species of even-toed ungulate in the family Tragulidae.**

**The lesser mouse-deer is found widely across Southeast Asia in Indochina, Burma (Kra Isthmus), Brunei, Cambodia, China (Southern Yunnan), Indonesia (Kalimantan, Sumatra and many other small islands), Laos, Malaysia (Peninsular Malaysia, Sarawak and many other small islands), Singapore, Thailand, and Vietnam.**

**It is the smallest known hoofed mammal, its mature size being as little as 45 cm and 2 kg. It is threatened by predation by feral dogs.**

**Through further research it is also discovered that the creatures who were initially believed to be nocturnal actually conduct their activities during the day. As discovered by Kusuda, the first being that though many births occur in May, November or December, the females are able to reproduce throughout the year.**

## Greater mouse-deer





The greater mouse-deer, greater Malay chevrotain, or napu is a species of even-toed ungulate in the family Tragulidae found in Sumatra, Borneo, and smaller Malaysian and Indonesian islands, and in southern Myanmar, southern Thailand, and peninsular Malaysia. Its natural habitat is subtropical or tropical, moist, lowland forest.

Greater mouse-deer are found in Sumatra, Borneo, and smaller Malaysian and Indonesian islands, and in southern Myanmar, southern Thailand, and peninsular Malaysia. They live near water, in tropical forests and mangrove thickets. Thought to be regionally extinct in Singapore, they were rediscovered on an offshore island in 2008. Reports of its occurrence elsewhere are probably incorrect. They are terrestrial, but spend time in wet, swampy areas.

The greater mouse-deer is solitary and nocturnal. It uses small trails through thick brush in the forest. When the male is ready to mate, he rubs a large gland on his lower jaw against the female to determine whether she is ready to mate. If she is not ready, she responds by walking away. The male is very territorial, marking his territory with feces, urine, and secretions from the intermandibular gland under the chin. When angry, the male beats the ground with his hooves at a rate of four times per second.

They are rather trusting but delicate animals. They feed on fallen fruits, aquatic plants, buds, leaves, shrubs and grasses.

## Philippine mouse-deer



The Philippine mouse-deer, also known as the Balabac chevrotain or pilandok (in Filipino), is a small, nocturnal ruminant, which is endemic to Balabac and nearby smaller islands (Bugsuk and Ramos) southwest of Palawan in the Philippines. The genus *Tragulus* means 'little goat' and the Philippine mouse-deer has been named so due to the horizontal pupils of the eyes. This position of the pupil allows for an increase in peripheral depth perception. It has traditionally been considered a subspecies of the greater mouse-deer. In 2004, though, *T. nigricans* was separated from *T. napu* as its own species due to differences in skull morphology (skull measurements). Contrary to its common name, the Philippine mouse-deer does not belong to the deer family Cervidae, but is a member of the chevrotain family.

It is a solitary, nocturnal animal, but has on occasion been seen in pairs for short periods of time. The Philippine mouse-deer's main diet consists of leaves, flowers, and other vegetation in the dense forest undergrowth. During the day, it takes shelter in the dense primary and secondary forests and avoids movement. At sundown, it will wander into mangroves and more open areas to feed. They have also been spotted along the seashore.

## Vietnam mouse-deer



The Vietnam mouse-deer, also known as the silver-backed chevrotain, is an even-toed ungulate in the family Tragulidae known only from Vietnam. It was first described in 1910 by British zoologist Oldfield Thomas, who procured four specimens from Nha Trang in Annam. Little is known about its distribution and ecology. After 1910, the Vietnam mouse-deer was reported next in 1990 near Dak Rong and Buon Luoi in the Gia Lai Province. With increasing hunting pressure, habitat loss due to deforestation and no more reports of the species in the wild, the mouse-deer was feared to have gone extinct. The IUCN listed the species as Data Deficient in 2008. In 2019, a study confirmed the presence of the Vietnam mouse-deer in dry low-lying forests of southern Vietnam with camera trap evidence. The mouse-deer is characterised by a rough coat with a strange double-tone coloration unseen in other chevrotains; the front part of the body is reddish brown and contrasts strongly with the greyish posterior. It has big reddish brown ears, white and dark reddish brown marks on the throat.

In his 1910 account, Thomas described the Vietnam mouse-deer as having a rough coat, big reddish brown ears, and white and dark reddish brown marks on the throat. He noted the sharp contrast between the reddish brown colour of the front part of the body up to the shoulders, and the grey posterior separated by a line of buff from the white underparts – such stark variation is not observed in other chevrotains. The tail, grey in the upper part and white below, becomes more reddish brown toward the tip, which is white. Per his measurements, the head-and-body length is around 48 cm and the tail is 5 cm long. Examiners of the 1990 specimen noted its shabrack-like coat with dense fur on the back and white hair tips. A prominent silver line runs down the back, hence the name "silver-backed". The neck and shoulders are more brown with less dense fur; unlike the lesser mouse-deer the fur on the neck is coarser and less prickly. The Vietnam mouse-deer lacks the dark markings along the flanks and the middle portion of the underparts visible in the lesser mouse-deer.

The 2019 camera-trap evidence suggests that Vietnam mouse-deer are diurnal (active mainly during the day), and stay solitary or form pairs. The locality where the 1990 specimen was obtained was a low-lying area of semi-deciduous tropical forest; several lesser mouse-deer specimens were found in the same area, suggesting sympatry. The 2019 study observed the Vietnam mouse-deer in dry lowland forest near the southern coast of Vietnam.