

# Reptile CARE

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## Tiger Leg Monkey Frogs Jewels of the Jungle

Plus:

**Breeding Corn Snakes**  
Avoiding the pitfalls  
of herpetoculture

**Reticulated Python**  
Big is beautiful

**Collared Lizards**  
An alternative to beardies

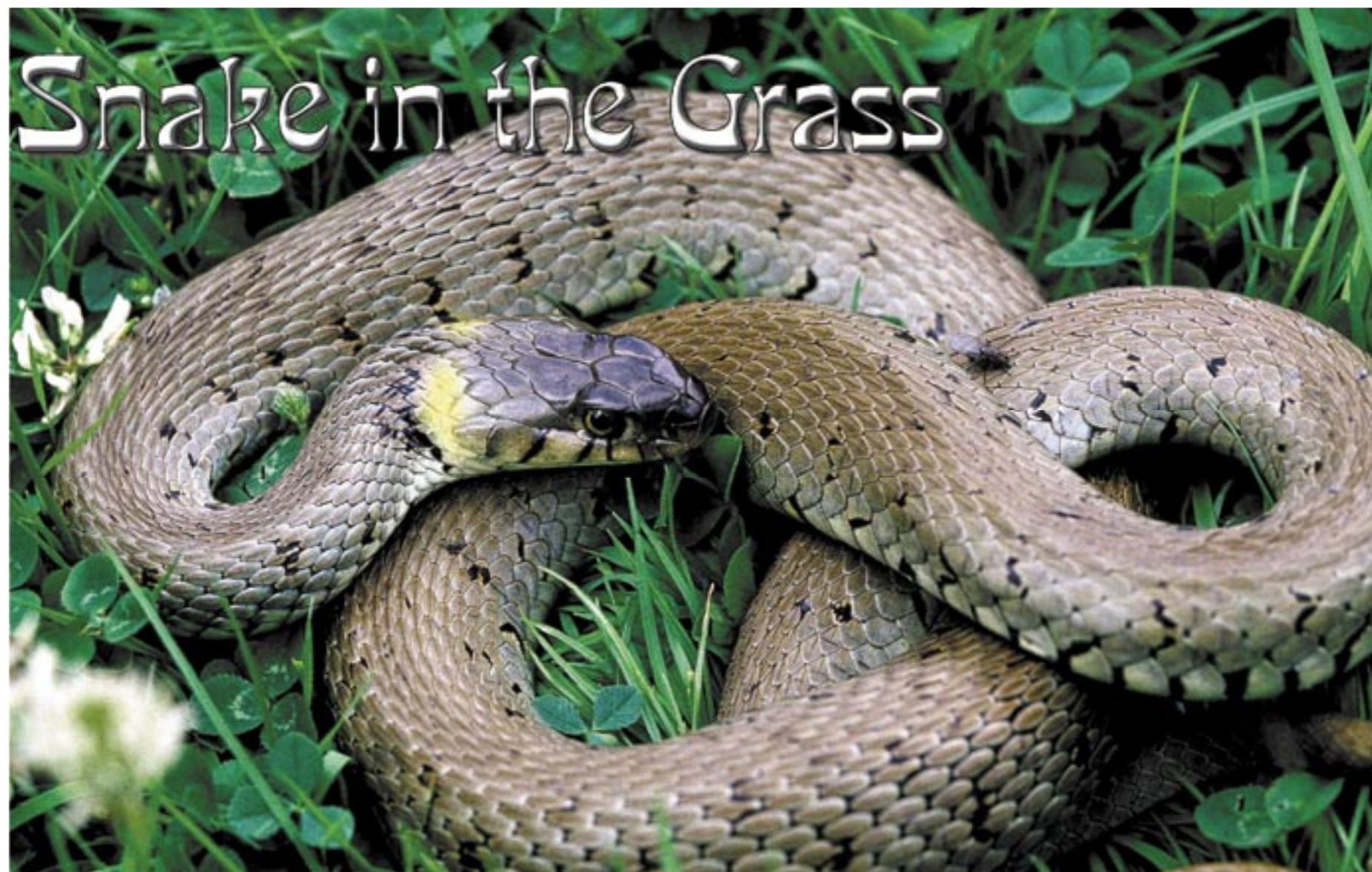
**Mark O'Shea**  
Reveals all to Reptile Care

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Housing, Feeding, Breeding and Much, Much More...



**Chris Davis meets the UK's biggest reptile - the Grass Snake**

The Grass Snake is a member of a group of snakes collectively called "Water Snakes", a well deserved name as it is very much at home in water and tends to prefer habitat with available ponds, ditches and so on. It is Britain's largest reptile and this alone makes it hard to confuse an adult with any other native species. It is a widespread species throughout most of Europe although it does not reach as far northwards as the Adder. It is our only egg-laying snake and has successfully adopted a methodology for incubation of its eggs, which is unique within Britain. There are a number of sub-species although there is some debate over just how

many. While 12 have been described 4 are generally recognised of which one, *Natrix natrix helvetica*, is found in the UK. The Grass Snake can grow very large and this alone can sometimes be sufficient to identify it. Adults can reach around 65-80 cms on average, but the largest recorded in this country was around 1.8 metres long – around three times longer than any other British species. Grass Snakes do have a distinguishing feature that is unique to them and this is the yellow collar or ring that gives it its alternative name – the Ringed Snake. Sadly, this can fade or disappear with age or even simply

bordered behind by two similarly shaped black patches. In some individuals the collar is continuous and not broken at the mid-line. It tends to fade with age and this is particularly noticeable with females.

The eye is usually copper coloured with a dark circular pupil. There are a number of black bars on the side of the head extending from the eye to the mouth. Two features are worthy of mention due to their forming part of a unique behavioural description. The underside of the Grass Snake tends to be whitish with a checkerboard pattern of dark, usually rectangular blotches. These are very distinct and can be a very good key to identifying individuals. Since one of its defence tactics is to flip on its back to play dead when cornered these patterns are often readily seen. The solely behavioural description relates to the fact that a Grass Snake will also defecate when handled. The excretions from the anal glands are extremely pungent, an odour that once smelt, is never forgotten. It is unique enough and strong enough that one can, on occasion, be confident of the presence of Grass Snakes simply by the odour where one has adopted this defence, and is thus appropriate as an identifying feature. There is no sexual dimorphism in terms of colour and markings and the young hatch with the adult colour scheme.

Grass Snakes emerge from hibernation usually in March. The hibernation period and a following period of basking and warmth are necessary to the development of both sperm and ova. During this time they will often remain in groups and can be very sluggish until they have raised their body temperature sufficiently. There seems to be some variation in behaviour following this period, particularly in respect of mating. Mating may take place before significant dispersal or after this, and in either case it occurs soon after hibernation in April or May. The males search for females picking up and following their scent trails. Once a male finds a female he straddles her back and flicks

not be present. Nevertheless it is safe to say that if, behind the head, there is a clearly discernible yellowish collar with a black border behind it, then the animal is a Grass Snake. Conversely the absence of such collar does not mean it is not a Grass Snake. The background colour can be an olive green, grey or brown or some variation of this spectrum. There are a series of usually vertical black bars along the flanks and two rows of black spots or bars along the back. The collar can be quite a bright yellow but is more typically a pale yellow, sometimes cream or even an off-white. Usually broken at the centre line it tends to form two crescent shapes

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**WHERE CAN YOU SEE GRASS SNAKES?**

Probably one of the best places to see Grass Snakes is in areas of mixed lowland habitat with plenty of good open sunny areas and ample irrigation ditches or ponds. There are many levels and marshes in Southern England such as this, most of which have a population. They can also be found on many of the lowland Heathlands, usually in the damper areas, again with standing water available. In such areas they will frequently be seen basking on banks next to the water into which they will dive at any approach. If you wish to see them you should move very slowly looking at suitable basking areas several feet away from you. If you move to close they will always seek refuge, most probably in the water but even here it is fascinating to see how totally aquatic they are. If one should be unable to escape it will initially thrash around quite wildly and strike repeatedly albeit with its mouth closed. It will then either defecate or play dead. The former is extremely unpleasant and should be avoided – the smell will linger on clothing and skin for a long time. The latter is so convincing that even experts have been unsure whether the snake is dead or alive.

his tongue repeatedly over her flanks and back. He will rub his chin along her back and, matching the bends in his body to hers, the pair curl their tails together until the vents are aligned and copulation takes place. This can take up to an hour and the pair tend to remain largely static. Unusually, by some currently unknown mechanism, the female becomes unattractive to other males after mating so her clutch has a single father each year.

Unlike Adders there is no apparent combat between males. If two males approach a female at the same time generally the larger will mate successfully by virtue of his greater strength. On the continent mating balls have been seen where several males are trying to mate with a female simultaneously but this does not seem to be the case in Britain.

The snakes disperse to hunting and egg laying sites generally travelling along ditches, hedgerows and banks. They will travel some distance, a typical territory being between 10 and 15 hectares. They are largely diurnal although they will hunt on warm evenings, and their preferred foods are amphibians with a particular leaning towards toads. They are active hunters both on land and in the water where they swim very strongly and can submerge for up to half an hour. The remainder of their time is spent basking or in refugia. Unlike our other two species they have no mechanism for subduing their prey but simply slowly but surely swallow it live. Larger toads or frogs will sometimes be seen to be still moving within the snake for a while after being consumed.

The females seek out egg-laying sites during June and July. It is here that they show a unique adaptation to our unpredictable climate utilising what is, to all intents and purposes, artificial incubation. They find heaps of decaying organic matter such as compost heaps, piles of wood-chippings or even manure heaps. The females burrow within these and lay their eggs in a part that is at a suitable temperature, around 27-28°C. This restricted egg-laying location often leads to several clutches being found



All photos copyright Chris Davis

**WHAT CAN YOU DO TO HELP GRASS SNAKES**

Under the Wildlife and Countryside Act 1981, subsection 9.1 Grass Snakes are protected from being killed, injured, sold or traded in any way. Should you become aware of someone killing these animals in the mistaken belief that all snakes are dangerous please try to advise them of the facts and encourage them to show tolerance. You should also make yourself aware of your local Grass Snake colonies, particularly in areas where there might be proposals to carry out development. Should you become aware of such proposals make sure that the Council involved is aware of the presence of these animals, if need be reminding them that the animals are protected and there is a duty on them to ensure that the planning applicant's proposals comply with the law.

together. Clutch size relates largely to the size of the mother so, while the average is around 10, it can vary from 5 to 50 or even more. The young hatch 6 to 8 weeks later in August or September and are around 16-20 cms in length. The yellow collar is often very bright at this stage. They are ready to start hunting almost immediately although this is governed largely by the weather and the need to go into hibernation.

They go into hibernation during October or, exceptionally, November. They will use mammal burrows, rock piles, deep leaf litter and natural fissures in the ground, but it is imperative that the hibernaculum must be protected from frost so sites with a southerly aspect are favoured. Their search for suitable winter quarters may lead to several animals hibernating together, which may itself be a survival

strategy.

Grass Snakes are susceptible to predation particularly immediately after emerging from hibernation and hatching. Kestrels, buzzards, magpies, crows, hedgehogs and foxes all take their toll and, as with all our reptiles, man himself is a great enemy.

The Grass Snake is restricted largely to lowlands and the more southerly parts of Britain. Apart from a few successful reintroductions it is completely absent from Scotland and largely so from mid-Wales. Population densities are quite low in the northern third of England, and it is entirely absent from Ireland but can be found on Jersey in the Channel Islands. This distribution in part reflects its habitat requirements. The Grass Snake does not favour the dry heathland so loved by our other reptiles, but will be found passing through if there is wetter

habitat nearby. They are seldom found out of reach of some sort of body of water, be it a pond, ditch or river. A major requirement is plenty of sunshine - since they favour a cooler, damper habitat than most reptiles then the need for ample sunshine is somewhat greater. In the past they were frequently found around farms with their traditional muck heaps and duck ponds and despite being very shy they will sometimes be found in suitable parks and gardens with ponds.

It is very difficult to assess the population in this country due to this snake's shy nature. Population densities seem to be around 3 per hectare and being widespread, at least throughout the South, it is certainly not under threat to the same extent as our dry heathland reptiles. Although changes in farming practice

have damaged its former habitat, its use of parks and gardens as mentioned above compensates to some extent. RC

*Chris Davis has been a reptile and amphibian enthusiast since catching a Slow-worm in his back garden at the age of 3 - some 55 years ago. During that time he has kept and bred many species but his first love is Lacertid Lizards about which he is now acknowledged as something of an expert. He has worked extensively with the British reptile and amphibian species both in the field and in captivity. He is an active conservationist of many years standing concentrating largely, but not exclusively, on the Sand Lizard. He works with the Herpetological Conservation Trust as the Co-ordinator of the Sand Lizard Captive Breeding and Re-introduction Programme with specific responsibility for the North-Western race of this species, on which subject, coupled with the captive breeding of temperate species, he gives regular illustrated talks.*





The Collared Lizard is full of personality, and makes a great alternative to some of the more popular reptiles currently available, says **Rachel Hitch**.

Collared lizards belong to the genus *Crotaphytus*, and are native to North America, ranging from Colorado, Utah and New Mexico to Arkansas and Texas. There are various species belonging to the family, including the most commonly found in captivity, the *collaris* (the common collared lizard). The *Crotaphytus collaris* is divided into five sub-species - *Crotaphytus collaris collaris* (the eastern collared), *Crotaphytus collaris baileyi* (the western collared), *Crotaphytus collaris fuscus* (the Chihuahuan collared), *Crotaphytus collaris auriceps* (the yellow headed collared) and *Crotaphytus collaris melanomaculatus* (the black spotted collard lizard).

The collared lizard is characterised by its broad head and



blunt snout, and has a cylindrical tail that makes up half to two-thirds of its total length. Adults measure an average of ten to twelve inches long, males reaching their maximum size by the age of three, with females continuing to grow steadily throughout their lives. They are one of the most colourful lizards in North America, with dorsal colouration varying from green to blue or turquoise. Females are less brightly coloured than males and are usually a green to brown or fawn colour, except in mating season when they develop vivid orange or red bands and spots across their necks, backs and sides. Males display impressive dewlaps that again vary in colour, depending on the species and range, from green or blue to yellow or orange. A pair of collars is always

present, lending to the common name of these lizards. Gender can be determined primarily by these distinct differences in appearance, although as hatchlings both sexes appear visually identical. Adult males also have enlarged preanal pores that are much more prominent than that of a female.

These lizards can be territorial so housing males together is not recommended. Collards can be kept singly, in mixed sex pairs or groups of one male to several females. They are active lizards that cannot have too much space, so it is best to provide the largest tank possible. The vivarium should be at least three feet in length for a pair of collards to allow them to move about freely. If given enough space these curious reptiles are able to run on

just their hind legs, which are long and robust, and allow the lizards to speedily sprint and jump great distances.

Collards are diurnal lizards and therefore require UV lighting, which can be provided by a good quality bulb or tube that emits high levels of UVA and UVB. The bulb or tube should be situated where the lizards can get within, at most, twelve inches of it, as the further away the light the less effective the UV benefits. Temperatures need to be high and the basking spot should reach 100-110 Fahrenheit, while the rest of the tank remains 80-90 Fahrenheit. Night time temperatures should stay in the high 70s. Under tank heating pads, ceramic heating elements and bulbs can be used as heat sources, controlled by thermostats to ensure that the temperature remains constant and accurate. Humidity should be low, reflecting the natural dry, arid habitat of collards. In a tank where more than one lizard is housed, more than one basking site should be provided, to prevent territorial conflict.

Substrate may consist of paper towels, newspaper or carpet, though collards like to dig, so sand is an especially good medium to use, although, as with any particle substrate, there is the risk of gut impaction. If sand or a similar floor covering is used, consideration should be taken when feeding, or alternatively a box or area of sand or soil could be provided for the lizards to dig in. The lizards' home may be decorated with a hide or hides, a branch or log to climb on, and some rocks which may provide basking areas, though care must be taken that nothing can fall onto the lizard and cause harm. Climbing accessories are not a must, but collards will actively seek out the highest spot in their enclosure, and seem to enjoy the opportunity to climb.

Hatchlings and young collared lizards require feeding daily whereas adults can be fed less often. Collards are voracious

feeders and anything that they can fit in their mouths is food. For this reason only similar sized lizards should be housed together, and hatchlings should never be placed with adults. Collards lack parenting skills and cannibalism will occur if they are allowed near their young. Appropriately sized crickets, locusts, meal worms, wax worms and other gut loaded insects should be fed, and every other feed should be supplemented with a calcium and multi-vitamin product. Some collards may also occasionally eat plant matter and vertebrate prey such as other lizards and small rodents. Vast water intake is unnatural to a collared lizard's wild habitat but fresh, clean water should always be provided. Some individuals will drink from a water bowl, while others may prefer to drink droplets of water from leaves or cage furniture, although a lot of water will also be absorbed from the food that is eaten.

Male collards reach sexual maturity in their first year, but many will not reproduce until their second season. When a female is ready to mate, or is gravid, she will display a visual sign to the male to indicate that she wants to breed, in the form of orange or red bands and spots across her back, neck and sides. A period of brumation is recommended before breeding these lizards, and is induced by decreasing temperatures and photoperiod. Daylight hours should be slowly reduced over a few weeks, and temperatures should be taken down to 50-60 Fahrenheit. Feeding should be discontinued two weeks before temperatures are lowered, in order to completely empty the gastro-intestinal tract. Lizards

should be of optimum weight and health before brumation takes place. Failure to ensure these important factors could result in illness or death over this "winter" period. The lizards should remain in this sleepy state for a couple of months, after which time the temperatures should be slowly increased back to normal and the photoperiod should be resumed to summer hours. Feed the lizards, in particular the female, extra supplementation of calcium, as this will help her to produce strong, healthy eggs when she becomes gravid.

Collards display an impressive mating ritual, and the male will approach the female to instigate courtship by performing a series of rapid head-bobs. The couple will circle each other, head-bobbing at the prospective mate in front of them. The male will then bite the female's neck and attempt to mate her. The female may be submissive, or, if she is not ready to mate or is already gravid, will roll the male off of her and may even mount the male in an attempt to subdue his advances.

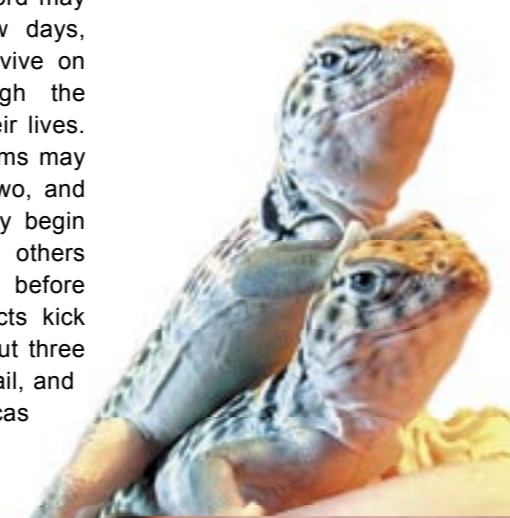
If the mating attempts were successful the female will gain weight over a few weeks and bumps will be visible near her abdomen when she is almost ready to lay her eggs. Her appetite will decrease and she will begin digging. It is advised that a lay box be placed in the enclosure, or that an area of the tank be made into an egg-laying site, as if there is not a suitable site dystocia (egg-binding) may occur. The lay box or site should be comprised of a suitable medium such as soil and vermiculite or moist sand, in which

the female will lay between one and thirteen eggs, although an average clutch size is six eggs. A female will lay typically one to two clutches of eggs per year.

The eggs should be incubated at a temperature range of 82-86 Fahrenheit, although it has been suggested that temperature fluctuations from high 70s to low 90s will ensure a mixture of both sexes. The incubation medium should be moist vermiculite, and care should be taken that the eggs are not rotated when transferring from the egg-laying site to the incubator, as movement could result in the drowning of the embryo or the tearing of the yolk stem. If the eggs begin to dimple it may be an indication that the humidity is too low, and increasing the moisture in the vermiculite should prevent the egg from drying. A fertile egg grows in size and, during the later stages of incubation, pink or red veins may be seen in the egg. The average incubation time is forty to sixty days, and the young collards can take several hours to hatch out of the egg. The umbilical cord may remain attached for a few days, and the hatchlings will survive on the yolk absorbed through the egg for the first days of their lives. Appropriately sized food items may be offered after a day or two, and some of the hatchlings may begin feeding right away, while others might take up to a week before their natural hunting instincts kick in. Hatchlings measure about three inches in length, including tail, and are perfect miniature replicas of their mothers, displaying the orange bands and

spots that she exhibits when gravid. UV light is essential to their health and they should be misted with water several times a day to allow them to drink. Once they are established feeders they will grow quickly and may be able to eat adult crickets within a matter of weeks. It should be noted that their environment will need to grow with them.

Collards are curious lizards, and exhibit many desirable attributes, not least their attractive appearance. They are agile athletes and furtive hunters, and captive specimens can become relatively tame. Wild caught lizards may not adapt to captivity easily, but captive bred collards do very well as long as their basic needs are met. There are still many questions to be answered about the origin of the collared lizard and there is much scope for further research to be conducted on their natural habitat and captive care. However, the personality of collards is huge and their individuality is hard to compare with, which makes their desirability as a pet more and more popular. R



**COLLARED FACTS**

- The Collared Lizard has also been called the Mountain Boomer, because it was thought to make sound that echoed around mountain ranges. This isn't true, however.
- If given enough space, they will run upright on their strong legs - looking like a miniature Tyrannosaurus Rex.
- While other lizards can shed their tails as a defensive mechanism, the Collared prefers to hold on to it as it is a useful aid to its balance, particularly when running on its hind legs.