What is a Leopard Gecko?

Leopard Geckos were first categorised as a species in 1854. They were given the name Eublepharis macularis.

The generic name Eublepharis is a combination of the Greek words Eu (true), and blephar (eyelid), as having eyelids is what distinguishes members of this subfamily from the other geckos. The name macularis, comes from the Latin word macula which means "spot" or "blemish".

Leopard Geckos are native to Afghanistan, throughout Pakistan, north-west India and into Iran; where they inhabit the rocky, dry grassland and desert regions of these countries. They are nocturnal creatures and spend the day hidden under rocks or in dry burrows to escape the daytime heat; emerging at dusk to hunt insects and to warm themselves on the rocks which have been sun baked during the day.

The Leopard gecko is one of only a few gecko species that have eyelids. This helps the gecko keep its eyes clean in the dusty environment that they live in. Like most other geckos, the Leopard gecko can clean and moisten its eyes using its tongue. Unlike nearly all other species of gecko, Leopard geckos have small claws instead of adhesive toe pads, which stops them from climbing smooth vertical surfaces. However, their claws give extra grip on the ground and are useful for digging.

Like most lizards, the Leopard gecko can lose its tail, in a process called caudal autotomy. When frightened or disturbed *(grasped),* muscles at the base of the gecko's tail constrict and snap the vertebrae, severing most of the tail. The detached, wriggling tail distracts the predator as the gecko now makes a hasty escape. The Leopard gecko will grow a new one in time, this will take about 40 days, the regenerated tail will differ from the original, appearing bulbous with no ridges. The tail will sadly never look the same as the original.

Geckos also use their tails for storage. When a Leopard Gecko eats, it stores part of its food and converts it into fat, which goes to its tail. In times of hunger, Leopard Geckos survive by metabolising this fat reserve and can survive for a few of weeks without food. A healthy Leopard Gecko's tail is wider than the width of its neck as a general rule.

The natural colouring of the Leo tends to be a yellow base coat with numerous dark melanistic spotting resembling Leopard spots - hence their name. However captive breeding for many years has produced a huge array of different colour morphs.

A captive bred Leo is capable of living up to 20 years if well cared for and looked after! In fact the record holder as far as I know lived 27 Years!!

Unlike other lizards the Leo does not require periods of basking - as they are ground dwelling they have adapted over the years to gain their body heat from the ground and indeed they need a warm ground source to warm their bellies in order for them to properly digest their food.

HOUSING

The housing requirements for your gecko.

If you are new to keeping Leo's you may be wondering exactly what you can use to house your Gecko & what accessories you will need.

What Size Vivarium?

As general rule I have found that you will need a minimum tank size of at least **2 feet** to accommodate 1 to 3 adult geckos. A **3 foot** tank will allow you to house up to **5** geckos in comfort without stressing them out too much.

It's important to realise that, when adult; you can never have **2 male** geckos together - they are extremely territorial and they will fight, often to the death; to protect their territory. When a male Gecko sees another male he will vibrate his tail - the second male will usually then respond in kind - now that they both know they are males a fight will start! Therefore if you want to keep more than one gecko you will need to have just one male and the rest females - or indeed all females. One male can be kept with up to **10** females - the only limiting factor being the size of the Vivarium!

I personally would recommend that **if** you just want ONE gecko to start with - it would be a good idea to have a male - especially if the Leo is to be a pet for a young child. The males are a lot less demanding than the females for the beginner. The Leo like many other lizards will when sexually mature, lay eggs regardless of whether it has mated or not. If you have a single female you may find yourself throwing a pair of infertile eggs in the bin every 3-4 weeks during the breeding season. If you want to spare yourself this problem then a Male is a great choice for a solitary Lizard.

Area vs.. Height

Leo's are terrestrial lizards - meaning it's more important for them to have ground to explore rather than a tall Vivarium. They will require a certain amount of ground space to walk around and you must also allow for the placement of one to two hides and also a moist hide, a water dish and possibly a feeding dish.

Any good wooden Vivarium will do. But there are other types of Vivarium you can opt for. The Exo Terra range of glass Vivariums are great looking housing and if a suitable size is chosen there's a whole host of accessories available for them - such as lighting hoods etc...

Wood or Glass ⇒ Heating

If you opt for a wooden Vivarium you will need to place your heating solution inside the Vivarium under a suitable substrate. Wood does get warm but it is also a pretty good insulator and the heating generally works off infra red heat and just won't work through the wood properly.

If you choose a glass Vivarium or indeed a good plastic one - you will have your heat mat underneath the Vivarium. Either loose or stuck to the glass *(some heat pads come with an adhesive on one side for this purpose)* The heat will easily go through the glass to the substrate. However bear in mind you will probably need to have some sort of insulator under your glass tank to ensure against burning the surface it's sitting on. Most places like B&Q or Homebase have polystyrene tiles or even rolls of thin polystyrene sheet that you can use for this purpose. If your glass Vivarium has feet however, there may be enough of an air gap if you stick the heat pad to the base for overheating to not pose a problem.

Ventilation

Ensure that your Vivarium has some sort of ventilation. It's rare nowadays to find a Vivarium that has no ventilation - but bear in mind if you build your own provide some ventilation. Do this either with a designed gap covered with plastic or wire meshing or any of the custom built Vents available on the market. Some owners get hold of small PC like fans and fit them to timer switches.

Cleaning

The Leo is a fairly clean animal - they will soon adopt a single area of the Vivarium in order to go about their toilet business. I usually provide a small amount of Kitchen roll for them for this purpose and every 2 days I bin it and replace it. Your Vivarium has to be big enough to provide a suitable toilet section.

As a rule of thumb I tend to thoroughly clean out the entire Vivarium and change substrates on the floor and moist hides every **5-6 weeks** to ensure against any bacterial build up. I use a product called **Vet-a-Clean** for all my cleaning. You can get a concentrate from EBay for about £10 - it will last you ages and is much much cheaper than buying disinfectant in all the time!

Hides

Why does a gecko need a hide? Basically to stop them stressing out. A wooden Vivarium is great in that it has 3 sides that are wood and therefore provides cover - however even in a wood Vivarium the gecko still needs somewhere to hide - to relax - chill out and feel safe. They can and do get stressed if they do not have a hide. Unlike humans you will not be able to see if your gecko is suffering from stress, but they **will be** and excessive stress from no hides often causes the eventual death of a domestic Leo.

Any of the popular Hides will do - like half a coconut or even a hollowed out tree trunk. I like the look of the Exo Terra hides and I have the small ones for my hatchlings and the medium ones for my adults. You can find all of the Exo Terra range in any good reptile shop, online reptile supplier and EBay.

Moist Hides

Hang on - we have a hide why do we need a moist one? Well the Leo "grows" by shedding its skin. During this process humidity is vital for the Leo as it uses the moisture to soften the old skin and enable it to peel it off its body much more easily. If the skin gets too dry during the shedding process it can bind and causes the gecko all sorts of problems as it will eventually shrink. Poor sheds can often lead to the Leo losing toes and trouble with eyes and mouth. This can be easily avoided by providing a moist hide.

To do this all I do is take a suitable Tupperware food tub - the sealable type - and cut a hole in the lid for the Leo to enter/exit. **Tip**: use a gas cigarette lighter to melt the edges of the entrance hole after you have cut it to ensure against the Leo hurting itself - they get very vigorous in rubbing themselves against any edge they can find when they are trying to remove their skin!

Inside the tub I provide suitably moistened **Eco Earth** - which is Coconut Fibre - not too wet though - just moist enough that it's feels damp and takes on a dark colour. You will find the Leo in the moist hide more often than not. The humidity is also good for their health as too dry an environment can lead to respiratory problems for Leo's. You can alternatively use **Sphagnum Moss** as your moist hide's substrate. I prefer the Eco Earth as when laying, the female will bury the eggs nicely and I know that If I am late in finding them; the earth will provide adequate heat and moisture to keep the eggs healthy until I move them to the incubator. Oh you will have to re-moisten the hides every few days as they will invariably end up drying out.

I like to place two moist hides in my 3 foot Vivarium. One on the warm end and the other halfway down - this gives them the choice of which sauna to pop into!

Water

Leo's need water **24/7.** You probably may not ever see them drinking - but trust me - they do! Top up the water with fresh every 2 days maximum. You can get special solutions to neutralise the chlorine and other chemicals in normal tap water for the geckos benefit. Alternatively fill a container with water and let it stand overnight for the chemicals to evaporate away.

Climbing

Okay Leo's are not vertical cliff face climbers - but they **do** like to climb - you can if you wish provide them some climbing apparatus if you want - a platform or a suitable ornament will do just fine. There is a big **no-no** when it comes to climbing that I really advise against. Exo Terra Vivariums are great but they come with a foam background. Generally this is fine for sucker feet gecko species but I would really advise against using it for Leo's. The Leo **can** and **will** climb this foam background because of its shape and can get right at the top of the Vivarium!! But they will invariably fall asleep there and fall off with potentially disastrous consequences! So take out that background if you're going to keep Leo's in your Exo Terra!

HEATING

Heating Methods: Keeping your Gecko warm.

Heat Mats

Generally the best way to provide heat for your Leo is going to be a heat mat. They are special mats manufactured to provide - well, heat basically! They work much like the rear window heater in a car in essence. They generally come in two flavours - square or oblong of various sizes.

Square is going to be what you're after for a Leo Vivarium as your Leo needs a warm environment being cold blooded - but it specifically requires a gradient. It needs it to be the right temperature at one end of the Vivarium and for that temperature to gradually fall off towards the other end of the Vivarium.

As a general rule of thumb **88°F** to **95°F** *(max)* at the warm end tapering down to approx. **75°F** *(min)* at the cool end. Of course temperatures will fluctuate daily anyway especially if sunlight is able to see your Vivarium *(direct sunlight is definitely not advisable as it will rapidly heat up the Vivarium and could possibly kill the Leos).* At night it can in fact be beneficial to have a small drop in temp and it can go down to 65ºF with no ill effects.

The best way to accomplish this is to put the heat mat at one end of the Vivarium under the substrate. The best use I have found for the longer narrower heat mats is as a heat source for my multiple breeder tanks for my hatchlings as it can go under 5-6 of them at a time and cheaply and economically provide heat for all of the tanks above it..

If you opted for a wooden Vivarium you will need to place your heating solution inside the Vivarium under as suitable substrate. Wood does get warm but it is also a pretty good insulator and the heating generally works off infra red heat and just won't work through the wood properly.

If you chose a glass Vivarium or indeed a good plastic one - you have to put your heat mat underneath the Vivarium. Either loose or stuck to the glass *(some heat pads come with an adhesive on one side for this purpose)* The heat will easily go through the glass to the substrate. However bear in mind you will need to have some sort of insulator under your glass tank to ensure against burning the surface it's sitting on and to economically reflect all the heat from the mat upwards where needed. Most places like B&Q or Homebase have polystyrene tiles or even rolls of thin polystyrene sheet that you can use for this purpose. If your glass Vivarium has feet however there may be enough of an air gap if you stick the heat pad to the base for overheating to not pose a problem

Measuring Temperatures

There are a multitude of heat sensors out there for monitoring the temperature of your Vivarium. I have of them myself. The one I use in my breeder Vivarium is shown opposite. I acquired it off EBay. It allows monitor both ends of the tank and to have an alarm go off whenever temps go above or below a set rang can program in yourself.

I also have a small infra red sensor that you can just point at a surface and get a reading - very handy!

I recently got hold of a digital meat probe which can take a reading in 10 sec's at its tip - I have found i handy for substrate readings in the incubator as well as for my Vivariums.

Controlling the temperature.

Well you have 2 options here - either a **thermostat** or a dimmer.

Plug in Dimmer

First the dimmer. If you look about on EBay you can find a plug in dimmer.

I personally use these with all my Vivariums. I have a temp sensor which I manually note the temp and a the rotary control of the dimmer to suit to maintain the correct temperature in the Vivarium.

I have found that even with the smallest power mats - in the region of say just 12 watts - that I usually have the dimmer on **½ to ¾** of its full setting to maintain proper temps.

The drawback of this technique is of course it does not automatically compensate for temperatures rise drops - so you have to be observant and conscientious - - but the major dividend is that these are really to buy *(£5)* compared to the cost of a dedicated thermostat at £20+.

Thermostats

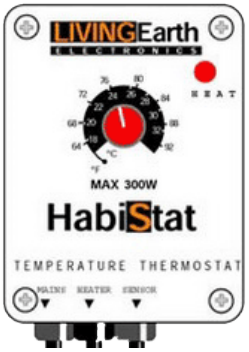
There are a variety of different types of thermostats available and they each do different things - I personally recommend Habistat and here's a rundown of their models:

Mat stat

this is a bog standard thermostat for use with mats up to 100W. It is basic in operation using a heat sensor to turn the mat off completely. When the temp drops approx. 2ºC *(max)* it turns the mat back on - simple as that.

Drawback? A constantly fluctuating temperature.

Temp stat



For use with mats and other heaters up to 300W. It is basic in operation using a heat sensor to turn the mat off completely. This model has a better temp controller in the form of a rotary dial with calibrated markings. When the temp drops approx. 2ºC it turns the mat back on - simple as that.

Drawback? A constantly fluctuating temperature.

There is also a twin channel version of this Stat for controlling two Vivariums or heat sources independently.

Pulse Proportional

This stat is great for ceramic heaters and the like but is also useful for mats too - can control heat sources up to 600W. More sophisticated in that it monitors the temperature and pulses electricity to the heat source constantly - the frequency of the pulses is determined by the heat sensor. The pulses will plateau at 50% off and 50% on time wise. Unlike the former heaters, the mat never gets totally cold and thus it prolongs the mat's life. Due to its nature cannot be used with element bulbs.

There is an additional model called Day / Night. It works the same way but you can manually control the amount of temp drop during the night.

Dimming stat

Where the pulse proportional cannot be used with normal element light bulbs - this one can. It's basically a temp controlled dimmer. It works exactly the same way as the pulse proportional model only differing in that instead of pulses of power intervals it sends a continuous power flow but Restricts it when necessary to maintain proper temps.. It can also be used with mats. Again a Day/Night version is also available.

Heat Lamps

Leo's do not require heat lamps for basking like many other lizards. However they can appreciate some lighting and there are considerations to be made with regards to lighting - see the lighting section for more information.

LIGHTING

Lighting requirements for your gecko.

Leo's generally do not need the additional support of a **UV** emitting Heat Lamp like many other lizards. Those other lizards need the Heat lamp as a basking source as they warm up their entire body using it; but also require the UV radiation from it in order to synthesise enough levels of Vitamin D3 to enable them to function biologically.

The Leo does not need this requirement - **but** I have found them to generally be a little bit healthier and happier with a light source provided.

I use the Exo terra range of bulbs which are Edison Screw fitting. You could use any suitable bulb and fitting you desire really - it's totally up to you on that. But I would not recommend anything above 40w in power maximum for a standard Height Vivarium *(you would be mounting the lighting on the ceiling of the Vivarium)* . I prefer the sun glo bulbs as I know it's chucking out proper UV levels for reptiles of all sorts.

I also use a blue moonlight Exo terra 15W bulb but have curiously found it chucks out a silly amount of heat! Too much in fact, so I will either provide a small red bulb or a few small red LED's for night-time lighting.

Red is the part of the spectrum that Leo's have trouble seeing or indeed cannot see at all - so a red light at night lets you observe them but does not distract them from their usual nocturnal activities

Lighting = additional heat

Light comes with the side effect of additional heating - if you use a thermostat you won't have to worry too much about it so long as your bulb isn't a silly power wattage *(40W max is recommended).* But if you manually control the heating, bear in mind you will need to adjust the dimmer plug to allow for the additional heat provided from your lighting.

SUBSTRATE

What is best for your gecko & what I use myself.

aaah substrate - the eternal reptile debate - especially for Leo's!

You are going to read a lot about substrates if you do any research on the net - but for reference purposes here is my two pennies worth! I will list the most common substrates and whether I like them or not below.

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① SAND

This is the one that causes most of the debate. Fine sand has the potential to cause problems with Leo's. Young Leo's especially have a habit of mouthing the substrate and eating fine sand particles. No-one "really" knows the definitive answer to why they do this. Adults generally tend not to fall into the silly habit but they can pick up grains of sand by chasing down the food items you provide for them as a side effect.

Sand has the potential to build up in the Leo's digestive tract and eventually cause impaction - a blockage if you will. You can read more about impaction in the Health section.

There is a product called Calci-Sand which is fine sand mixed with calcium. They would lead you to believe that if the reptile eats it, it at least gets the benefit of the calcium. Sadly it clumps like crazy when wet and the addition of the calcium only **encourages** the reptile to eat it. Silly idea really - I advise you not to go near it.

It's worth bearing in mind however, that the oldest captive leopard gecko was raised on sand. But personally - it's not a substrate I would use myself - impaction **can** and **does** occur and is **fatal** - My recommendation is **no** on that one.

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② Eco Earth

Eco earth is basically coconut fibres shredded up and you will receive it as a desiccated hard block. It works amazingly similarly to the way Wiley Coyote would make things from ACME. Add water and watch it grow!

When prepared it makes an excellent moist box substrate and I use it for that myself. I have not noticed the geckos' showing a desire to eat the stuff myself - but it does have the potential to cause impaction.

I also use it on the Vivarium floor but crucially I do not use it all over the floor of the Vivarium *(more on that later).*

Some keepers use Eco earth all over their Vivarium floor - I tried it once - it caused so much evaporation all my Vivarium windows were condensed right up to start with. That will stabilise it has to be said but as the moisture evaporates you will then have to constantly spray it down every day to keep it moist. Myself I prefer not to do that - so I do not use it as my main substrate.

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③ Slate and Tiles

Now we are onto my favourite substrate. I use three pieces of proper old roof slate in my Vivarium. Suitably cut down to size and with edges smoothed so as not to be harmful - slate can have very sharp edges to it! I basically have my Vivarium set up as follows. I place 3 polystyrene tiles on the floor of my Vivarium - suitably sized and one with a notch cut out of it for the power connector of my heat mat. The polystyrene is an excellent insulator and thus a reflector of heat. It ensures that the heat mat wastes none of its energy heating the wooden floor and reflects it all upwards into the substrate medium!

I then place the heat mat on its poly tile and then around the edges and in between I will fill the gaps with Eco earth. Then I place the slate tiles on top and again fill in-between them and around the outsides with more Eco earth.

This works great for me - the mat heats the slate well and there is enough Eco earth on the perimeter to encourage digging when the females are in the mood but not enough to allow them to lay eggs anywhere they fancy - they invariably always then retreat to the Eco earth moist hides to do their laying! ;)

If you can get hold of old slate roof tiles all the better - but you can use any porcelain or ceramic tiles from say B&Q for example equally as well. The big benefit is that they are easy to clean!

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④ Kitchen Towel and/or Paper

The old steadfast favourite is kitchen towels - and they are great. They do have the ability however to suck up the moisture from the air like a sponge - so keep an eye on your humidity levels if you intend to use kitchen towels as your sole substrate medium. I prefer not to use it as the sole substrate as it does have any aesthetic appeal to me - not that the geckos would mind!

I do however use kitchen towels exclusively in my breeder Vivariums which are medium and large Exo terra faunariums. Every two days I take out the old towels and replace - cleaning is simple this way!

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⑤ Sphagnum Moss

Like Eco earth it magically grows with water! It holds water extremely well - but also has the potential to dry out very quickly in the warm areas of the Vivarium. I use sphagnum moss as the moist hide substrates for my hatchlings. They need the moisture much more than a place to lay eggs as they are nowhere near egg laying age naturally! For that purpose it works great.

I personally wouldn't bother using it as my sole substrate or even as a mixer for say eco earth - just too much hassle really.

Other substrates

There are many other substrates you could try - like repti carpet or rubber tiles etc.. but some are poisonous to geckos - like pine for example - the top 5 I mention are the most commonly debated and the third is in my opinion probably the best - but again that's my opinion!

FEEDING

What can you feed your gecko?

Leopard Geckos can be fed a variety of nutritious live food. I will deal with the most common types one by one below:

Supplements

The Leo's we keep will rarely get all their nutritional needs met by live food alone. It can be achieved with a strict gut loading programme for the food - but it is always best to ensure their health by using supplements.

Calcium: Always provide a small receptacle filled with calcium in the Vivarium at all times. Again as with water you will probably never see the gecko licking the calcium but I can assure that they do! The calcium is commonly in the form of calcium carbonate. It can be found cheaply almost anywhere in any pet shop, online and can be bought wholesale from EBay.

Calcium is essential to ensure protection against Metabolic Bone Disease *(more on that in the health section).*

As well as calcium I use two other products:

T-Rex Sandfire Super Foods Leopard Gecko Dust

This is a very fine powder that has excellent cling properties when used to dust food – not much is required to get a great even coating. This dust coupled with the mealworms makes for a great complete diet. It is full of tons of supplements, some calcium and a bunch of healthy gut flora to aid in the gecko's digestion.

I dust with this every single feed whenever possible. As it has such great dusting properties a little goes along way - it should last you ages. It's best kept in the fridge to prolong its shelf life even further.

Komodo Premium Leopard Gecko Insect Dusting Powder:

I also supplement the geckos in one other way. As you know a bowl of **Calcium Carbonate** is always recommended for Geckos – and I mix the calcium carbonate 50/50 with this:

It doesn't have very great dusting cling properties, but works great as an addition to the carbonate to ensure that you have all food supplement bases covered. This way you can ensure that your geckos get their calcium and a little bit of their vits and minerals and other supplements whenever they feel the need to visit the calcium bowl in the Vivarium!

Crickets and Locusts

Crickets come in three varieties:

Black

Brown

Silent

(make no chirping noises)

The standard Locust

Crickets are one of the most common foods for reptiles. Total lifespan for a cricket is roughly 8 weeks. They are easy to house - any plastic container will do although I advise using a fairly tall one and with a bit of sandpaper roughing up the bottom half of the insides of the container and leaving a gap of about 3 cm or more untouched and smooth around the inside of the lip of the container. This enables the crickets and locusts to climb and perch on the sides of the containers but when they reach the smooth section they can go no further and with a 3 cm border if they then jump from there they will fall right back into the container. ☺

Locusts are fast becoming an affordable option for feeding your Leo's - and in my case once my breeders ate them - crickets were no longer good enough! This is probably due to the fact that a young Locust *(medium to large from the online suppliers)* is more than large enough for a Leo and their outer skin *(chitin)* is much softer than that of crickets.

You do need to keep them fairly warm or you will experience die offs in the stock - similarly if it's too hot you can get die offs also. It's recommended that you use no substrate in the container as it makes for easier cleaning and reduces the smell that will build up. Great temps would be about 85ºF - accomplish this with either a heat mat or simply put them somewhere that is suitably warm for them in your house.

Place a few egg cartons or empty loo roll tubes in the container this allows them to hide and also has the advantage of giving more surface area allowing you to keep more than the normal amount of insects in the container than you normally would be able to.

Make sure that they have as source of water too. To avoid spills in the container try a small bottle cap or jam jar lid with a suitable amount of **Bug Gel**. All this is the fine powder you sometimes see in garden centres for mixing with the soil of young plants. It is a synthetic granule that absorbs water and swells to many times its size and retains that moisture for a long time. The insects will "lick" the gel to receive their required water intake.

Remember you are what you eat! So clean the food container often and provide fresh food daily - discarding yesterdays leftovers. The foods the insects eat go into their digestive tracts and consequently right into the Leo's stomachs. So as well as the nutrition provided by the insect itself - its gut contents provide additional nutrition. This practice is called **Gut Loading**. Always dust before you serve to your Leo's!

Mealworms *(Tenebrio Molitor)*

The mealworm is the larval stage of a beetle. Mini mealworms are available for feeding to hatchlings and then generally you will get standard size ones for feeding to sub adult and adult Leo's.

Mealworms are best kept in cool conditions as they will last much longer. Warm temperatures speed up the process of pupation and you will get more than the normal amount of pupae in your container that generally have to be discarded as most Leo's tend to turn their noses up at them. This is mainly due to the fact that Leo's hunt primarily using motion detection and the worms are generally always on the move. A pupae however will not move unless it is actually touched or picked up by the head at which point it will wiggle it's body vigorously.

I tried feeding the pupae to my Leo's by holding the heads and getting them to wiggle - they responded but promptly spat them out - I suspect due to the tiny spurs on the side of the pupae body. No great loss as the pet gerbils love the pupae and if you have no rodents - then put them out for the birds who will equally relish them!

I feed my mealworms on bran or bran flakes *(unsweetened is best)* also add some supplement dusting powder to the bran - this provides the gut loading!

Super Mealworms & Morio worms

The super worm and the super Morio are in fact two different kinds of insect.

The super worm is a regular old mealworm that is treated to prevent pupation and fed for an extra 6-8 weeks to produce super sized versions. Storage and care is the same as for mealworms.

Like their smaller sized brethren they have an average nutritional value on their own so gut load with supplement dusted bran and also dust before feeding to your Leo's.

The super Morio worm *(real name Zophobus morio)* are bred from a different larger beetle *(Darling Beetle)* than those for mealworms. They are generally given to larger reptiles like Beardies and the like. They are more nutritious than regular mealworms with a better protein content.

They will arrive in the container in various sizes and your Leo should be able to handle the smaller sized ones which you will find when you get over the initial shock of just how big they are! The larger worms should be cut in two before feeding to your Leo's.

Be aware that these worms have a formidable set of pincers in their mouth region and you will have to crush their heads before feeding to your Leo to ensure against any injury. They will bite you too - and the result is like a tiny paper cut - so use tweezers!
These worms prefer dark conditions and a fairly warm area in the region of 75-85 ºF with a maximum of 90 ºF. Don't refrigerate super or Morio worms - it will eventually kill them off - they don't tolerate the cold that well. Water needs can be met with feeding things like bits of carrot potatoes and apple which will be readily devoured. Lack of moisture for morios will result in cannibalism.

Pinkies

Pinkies are day old newborn mice that are despatched and then frozen. A common food for snakes they are also useful for Leo's.

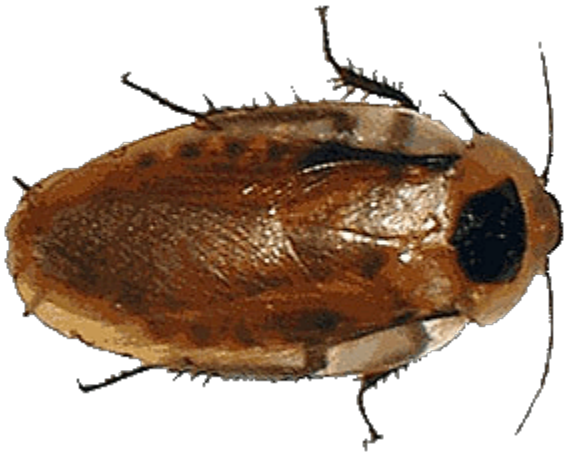
I use pinkies to supplement my female gecko's diet when they are in season. After laying eggs the gecko's will be ravenous and I dust the rump of a pinky and feed one or two *(depending on size)* to each starving female. This will give a good nutritional boost to her and ensure that she doesn't start getting too skinny and plump her up for her next batch of eggs in a few weeks time.

Cockroaches

If your Leo's like roaches - *you're going to have to try it at least once* - then you get a nice cheap source of food and also one that is easy to breed and keep yourself. My Leo's however appear to **despise** roaches - so my luck is out there:

Here are the main types of roaches you will find available in the UK.

The Discoid Roach: *(Blaberus discoidales)*



A tropical roach from Mexico, Central and South America. Measuring approx. 2 inches in length as adults. Adults have wings but are unable to fly. This is a non-climbing species - unable to climb smooth surfaces so great for keeping in the house for feeding Reps'. Adults have a life span of around 1 year.

Keeping and care is the same as for Mealworms.

Young are the best choice for Leo food being smaller and more manageable. Soft exoskeleton is easy for the gecko to digest and swallow.

The Turkistan Roach: *(Blatta Lateralis)*

1 inch approx in length as adults. Adults have wings but are unable to fly. This is a non-climbing species - unable to climb smooth surfaces so great for keeping in the house for feeding Reps'. They do not burrow and are dominant reddy brown in colour *(males are much redder)*and dart about drawing attention to themselves to the joy of the reptile being fed them. Adults have a life span of around 12 - 18 months.

Keeping and care is the same as for Mealworms. If your lizards like these - they are very easy to maintain a breeding colony for a constant cheap supply of reptile food! A good choice for Leo food being smaller and more manageable. Soft exoskeleton is easy for the gecko to digest and swallow.

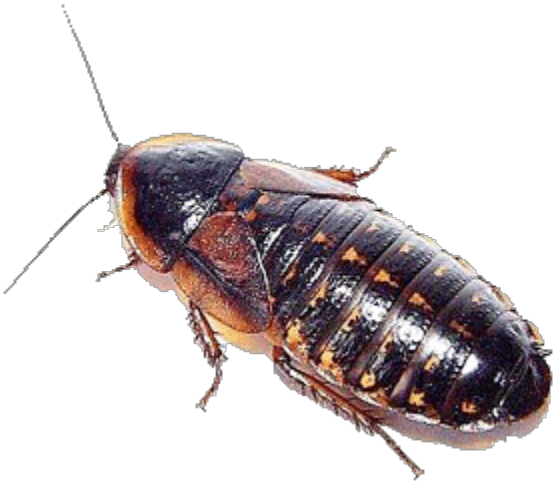
The Lobster Roach: *(Nauphoeta Cinerea)*

1 - 1½ inches approx in length as adults. Adults have wings but are unable to fly. This is a **climbing** species - able to climb smooth surfaces and almost anything else for that matter! So be aware if breeding for food for Reps' they will need a secure container! They are a fast moving species. Adults have a life span of around 12 - 18 months.

Keeping and care is the same as for Mealworms.

A good choice for Leo food being smaller and more manageable. Soft exoskeleton is easy for the gecko to digest and swallow.

The Dubia Roach: *(Blaptica Dubia)*



1½ -2 inches approx in length as adults. Adults have wings but are unable to fly. This is a non-climbing species - unable to climb smooth surfaces.

They have a modest speed. Males have long wings and females have stubby wing buds. Adults have a life span of around 1½ - 2 years.

Keeping and care is the same as for Mealworms.

Probably not a good choice for Leo food as they are fairly large and have a harder exoskeleton. Young Dubia are preferable if you must try them.

Waxworms *(Galleria mellonella).*

Waxworms are the grub larvae of the Wax Moth - I have never met a reptile that did not love these grubs!

They are a good treat, but the large fat content will lead to eventual obesity and arterial issues with Leo's especially if used as a staple diet. They **are** high in protein and calcium **but** their large fat content when compared to other food items makes them nutritionally prohibitive as a staple diet.

However the Leo's certainly do love them and they are great as a weekly treat. I use them more frequently for the more active female breeders. Gravid *(egg laden)* females and post gravid females need a bit of a fat boost as they will invariably use up their fat and calcium reserves and you will notice the thinning of their tales if you take no steps to counteract it. A nice supplement dusted waxworm is the ideal food item for just such females to keep them in peak condition during their egg laying season.

Keep your waxies in the fridge and don't feed them as they will pupate! Warm them prior to feeding - I do this in the palm of my hand. Oh, another trick for Leo's that are reluctant to feed - squeeze the waxies guts over another food item and then see how they change their minds!

Pachnoda - Fruit Beetle Grubs *(Pachnoda Marginata).*

These are the larvae stage of the Sun Beetle. A very attractive beetle and one which can also be kept as a pet. They will arrive on your doorstep in a container in which they will more than likely be in a high peat soil.

They are fat little grubs and so long as you don't have a mammoth sized ones your Leo will readily swallow these! My Leo's will grab it - and knowing that the swallowing process will be somewhat timely then run off and hide to finish the process. I only feed them one for obvious reasons and will not feed anything else in that session.

Pachnoda are nasty little things and also a bit stupid too. The first thing they will do when picked up is curl up and bite - trouble is they bite themselves! They can give quite a nip - so I ensure that I crush their small head and pincers before feeding at which time I have to provide the movement with the tweezers.

Feed head first as they excrete a foul tasting liquid from their rears - a by product of the peat soil they like to live in. Keep in a warm dark area. If you find a hard round ball in their container then one of them has spun a cocoon out of the soil - you might get to see a sun beetle soon.

Butter worms *(Chilecomadia Moorei).*

Native to Chile, Butterworms are a food item I wish was much more readily available over here in the UK. They are very high in calcium and have a lot less fat content than Waxworms. Some breeders even go so far as to use them as a staple diet and why not - Leo's who taste them apparently love them just as much!

They are soft bodied and do not bite - they are an almost perfect food item but alas they are very hard to get hold of in the UK - as they are a pest outside of the live food world there are very strict conditions regarding the import of them which makes them very hard to get hold of and pricey if you can!

Like waxies - they like the fridge and can last for up to 3 months!

HANDLING

How to handle and tame your gecko.

Leo's are one of the better reptiles when it comes to handling. They should be handled as young as possible in order for them to learn that humans are not a threat. The younger an age they have been regularly handled from they will be much more easier to handle as an adult.

One method is to offer them treats such as a waxworm when they are sitting calmly in your hand - they will then come to associate handling with nice treats and look upon handling expectantly. However once you go down this route you should always back up the confidence trick every now and then with an actual waxworm or they'll soon learn the con!

Leo's particularly like climbing all over people. Especially it seems the neck, shoulders and back! The most important consideration naturally to never grab the tail or the base of the tail - this will almost certainly result in an eventual loss of a tail for the gecko at some point. If they go to dart off simply quickly place your hand in front of their face or cup your hand over their head - this will usually quickly stop them in their tracks.

It is important to bear in mind that excessively handling your Leo can be end up being stressful for it - a good time for handling would be every time you clean out their Vivarium of say droppings or topping up water etc...

Don't handle your gecko off the ground. Sudden noise or movements can startle even the tamest of adults forcing them to possibly jump out of your hand and fall a great distance for them onto the floor with potentially fatal results.

Avoid the tail as much as possible but do **not** be scared of it to the point that you are not confidently holding the gecko because of a constant fear of damaging its tail. With time you will learn to confidently handle the gecko and skilfully avoid the tail. Handling the body is the best area. The greatest place to teach a gecko to be picked up is to form a cradle with your thumb and first or second finger combined, underneath their "armpits" and lift them up as if in a sling.

Never forcefully pull them off clothing, their perch or such items as you could inadvertently break the claws or even fingers in the process! They will let go of their grip eventually. When returning to the Vivarium place it onto the substrate and gently tap its hind quarters - this generally motivates them to leave your hand and go back onto the substrate.

My personal geckos all like the slide approach - I hold them gently above one of their hides at about a 45 degree angle and let them ever so gently slide out of my hand. They will stretch out the forearms to make contact with the hide roof and then slowly slide themselves off my hand - all the while gently gripping my hand with their hind limbs as they do so!

Handling youngsters

I handle my hatchlings from 1 week of age - but it is important to understand **what** handling refers to at this age. It's important for the young gecko to realise I am not a threat as early as possible - if only to stop them stressing out and to ensure nice tame adults later on.

My handling at this stage is simply putting my hand in the container they are in with my fingers flat on the floor palm facing upwards. At this age though the youngsters are full of fighting beans and will jump at you hissing and screeching. Once they realise it's you however they will soon chill out and calm down! It's important you don't over react and flinch away when they do this - there is no way on earth they are actually able to hurt you!

I then gently touch the gecko with my thumb which at this age usually results in a very fast short darting jump or little run. If well aimed you will get them to leap onto your fingers of their own accord.

When there they will tend to relax - us humans give off a lot of heat and the little gecko will immediately notice this and should quickly start to chill out so long as you keep your hand still. I will continue this practice at every cleansing until a month old at which stage I will advance to gently having the gecko rest on my thumb with a finger gently behind it's back.

At about 4 months of age they are large and chunky enough to easily handle more physical petting methods and by this stage will be quite tame from all the prior handling sessions.

Hygiene.

Your hands must be cleaned **before AND after** handle your gecko. For this purpose I always use **Purell** in my house prior to and after handling to ensure I do not get anything from them - and crucially that they do not get anything from me either!

Will Leo's bite me?

The will never bite unless they rarely mistake your finger for food. Even then the Leopard gecko has a fairly insignificant bite where humans are concerned.

They do have teeth but they are not significant enough to readily pierce human skin. The only sensation felt would be similar to another human giving you a very light pinch. However when educating children as to handling your Leo's you must explain to them about possible biting - as the instinctive human reaction to flinch could seriously injure the Gecko! They have weak - in comparison to us - jaws and bones and an ill thought flinch can easily snap these bones!

On the rare occasion where improper handling has **hurt** your gecko - they will respond with a **survival bite**. This type of bite is one with all the strength that they can muster - they are, in their own minds; now fighting for their life. This kind of bite will feel like quite a forceful pinch and if the gecko has some nicely developed teeth will feel like a little pin prick. It can - just like a pin prick - draw a little blood - this will usually only occur on very young human hands where the skin is more fragile than normal.

The gecko in this instance may not want to let go - calmly put it back in the Vivarium and let its feet touch the floor - then it will usually immediately let go and quickly make for the nearest hide.

You can avoid this from ever happening by always handling your gecko firmly but always gently - never ever squeeze your gecko or pinch it!

HEALTH

Your Gecko's health and well being.

Impaction

The first - some would say most important consideration, is the danger of impaction. Impaction is where the digestive tract is blocked by a solid or a semi-solid mass. If it is not treated it is fatal.

From Substrates:

The most common cause of impaction is housing them on loose substrates. This will develop over a longer period of time and is a gradual process. Sadly you will tend to miss it until it has become too late to save the gecko. As is mentioned in other sections of the site - sand based substrates such as Calci Sand - and its equivalents; are generally not recommended as they encourage eating the sand due to the calcium content! All such products clump together like cheap cat litter when wet. You've seen what that looks like? Imagine that in the digestive tract of your gecko!

It's worth bearing in mind that one of the oldest Leo's in the world in captivity was raised his whole life on sand! - The general consensus nowadays though is that only **adults** should be kept on sand and then at the owners risk. I personally don't think the risk is worth it myself and steer clear of it.

NOT RECOMMENDED

- Play sand
- Pine (poisonous anyway)
- Aspen (poisonous)
- Wood chips
- Dirt
- Bark
- Corn cob
- Crushed walnut shells
- Gravel
- Cheap cat litter
- Small pebbles
- anything else that is small and pellet like

RECOMMENDED

- Tile
- Slate
- Reptile carpet
- paper towels

From Food:

Other causes include feeding Leo's food that is either to large or inappropriate. You should feed insects that are generally no larger than the width of the reptile's head and never longer than the measurement from the tip of the mouth to the back of the head as an absolute maximum. Hard bodied insects that are too large can get stuck in the digestive tract, causing blockage. Feeder insects that have a hard Chitin outer-shell can, also cause impaction - one reason personally for me that I prefer to feed soft bodied young locust as opposed to crickets.

From Heat and water:

Low temperatures can cause improper digestion. Leo's require belly heat versus air heat, so take my advice on heat mats in the housing section. One other possible cause of impaction is lack of water - always ensure that there is suitable water in the Vivarium at all times.

Symptoms

Symptoms of impaction would be along the following:

Mild:

- Initially signs of substrate in the droppings.
- Constipation
- Straining to excrete faecal matter

Medium to severe:

- Slight leg trembles.
- Regurgitation of food.
- Bumps along spinal area.
- Paralysis in one or both back legs *(impaction in Lower Dig' tract).*
- Paralysis in one or both front legs *(impaction in upper Dig' Tract).*
- Lack of appetite compared to normal.
- Lethargy.
- Blue bruised abdomen area.
- Difficulty breathing.

Treatment

If you have caught the impaction early enough you may have a chance to successfully treat it. Set up the Leo in its own tank. Ensure heating provides the proper floor temps as discussed elsewhere. Use kitchen towels as the substrate in order to ensure there is no further substrate ingestion. **NOTE**: you will only be able to treat **mild** symptoms - more severe symptoms require the attention of a vet as soon as possible.

- With the use of a small eye dropper administer a small drop of mineral oil, olive oil or vegetable oil to the gecko daily.
- Provide warm water soaks for the gecko daily - ensure water in no hotter than 95ºF maximum.
- Try diluted weak solution of glucose laced in conditioned water every now and then.

If you haven't noticed a significant improvement and loss of impaction visible in faeces in 10 days - the only remaining option is veterinary care. Do not even consider administering your own enema to your Leo!! Leave it to the vet - preferably one specialised in reptile care.

Metabolic Bone Disease *(Hypocalcemia)*

MDB is caused when a leopard geckos diet does not contain enough calcium. In order for the Leo to acquire suitable levels of usable calcium the body begins to extract calcium from its own bones.

Symptoms include rubber-like flexibility of the limbs and lower jaw; deformities of the skull, spine, and tail; inability to feed; paralysis; and eventually death...

With leopard geckos being more resistant to complications regarding low calcium you should almost never see this problem so long as you observe proper healthcare procedure. To prevent MBD all you need to be aware of is that you need to add calcium or calcium containing supplements to the live food you feed them and to ensure you have a source of calcium in the tank at all time.

Use of a UV light can be beneficial if you find yourself treating a gecko with MDB - you have rescued one for example.

Cryptosporidiosis

A parasitic disease caused by Cryptosporidium, a protozoan parasite. It affects the intestines of mammals and is typically an acute short-term infection. It is spread through the faecal-oral route, often through contaminated water. It is one of the most common waterborne diseases and is found worldwide. The parasite is transmitted by environmentally hardy cysts *(oocysts)* that, once ingested, exist in the small intestine and result in an infection of intestinal epithelial tissue.

In recent years, there has been a trend of captive-bred leopard geckos hosting the parasite, which hobbyists typically refer to as **crypto**. This is more often down to breeders and pet shops keeping their animals in less than adequate housing and conditions - or breeding wild caught geckos without sufficient quarantine procedures.

Lizards afflicted with this parasite often appear to be wasting away, losing a significant amount of weight and regurgitating their food despite good environmental conditions and treatment. Medication, along with nutritional supplements and fluid and electrolyte therapy, can stabilize an infected gecko, but because this parasite can't be totally eliminated, the prognosis is grim for animals that contract it. Also, Cryptosporidiosis can be transmitted to humans, so the use of disposable gloves and effective hand washing is critical when dealing with an animal infected with the protozoan.

Sadly if your stock becomes infected with this parasite there is very little that can be done - although treatable in humans with healthy immune systems where it's duration is short - it is more often than not fatal for Leo's. The only protection you have against this parasite it to purchase your stock from reliable breeders. Ensure proper cleanliness at all times and quarantine new stock for a minimum of 3 months before introducing to the fold.

Mites

Mites are external parasites that sometimes affect leopard geckos. They are tiny *(a few millimetres in diameter and a member of the spider family)* and difficult to spot. They appear as tiny red, black, or gray flecks and tend to congregate around the eyes, ears, armpits, cloacae, mouth, and nostrils of their hosts-areas where the skin is thin and the numbers of blood-filled capillaries are high and easily accessible. If many mites are present, they can work together and quickly drain a significant amount of blood. Because of how quickly an infestation of mites can seriously affect the Leo's health - when you notice them you should act as quickly as possible.

Check for the presence of mites by wetting a white paper towel and scrubbing your lizard gently. If you see flecks moving slowly on the paper towel, your gecko has mites, confirm with a jewellers loupe or suitable magnifying glass.

Thoroughly bathe the Leo, paying particular attention to the eyes, nostrils, vents, and skin folds, and housing it in a separate Vivarium while you clean its home. When cleaning the Vivarium, dispose of the substrate, any live plants, and other furnishings that are able to be thrown away. Any items that are kept should be treated with a suitable mite killer following all safety precautions provided. Next, if your Vivarium is glass, soak the Vivarium in a bleach solution, letting it soak for 18 to 24 hours. Then, thoroughly rinse it and air it out. Alternatively use a mite killer commercial application on that also.

One final option is to take your pet to the veterinarian. They will prescribe a mite killer that will usually need to be applied on both the gecko and his Vivarium. This treatment should soon eradicate all mites.

Stress

Stress weakens the immune system and makes your leopard gecko more susceptible to disease. Minimizing stressful conditions is a simple and effective way to prevent it from getting sick.

Many factors, including handling, over feeding, breeding, poor environmental conditions, overcrowding, and being moved to a new enclosure, can cause stress in your gecko. Keep interactions with a stressed leopard gecko to a minimum, and ensure that its surroundings meet its needs to keep its immune system up to par.

Shedding

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A leopard gecko sheds its skin regularly. If your lizard takes on a dull, cloudy almost ghostly appearance, this indicates that the shedding process has begun. Its skin peels off the body in pieces, which the gecko tugs and pulls off and then consumes. *(It's not known if geckos do this for nutritional benefit or to reduce the chance of attracting predators.)*

Occasionally, problems can occur while shedding, usually when the skin adheres to the toes. If some of the shed skin becomes stuck on the toes, parts of the toes can become necrotic *(dead)* and fall off. Unlike the tail, toes that have fallen off never grow back. If a toe is lost by a bad shed, put a bit of antibacterial ointment on it to prevent infections

Shedding problems are mainly the result of low humidity. If the skin won't peel from the toes or other portions of the body, a soak in warm water may fix the problem. To soak your gecko, place it in an escape-proof container with water that just reaches its belly for an hour or until the water cools. *(Always supervise a soaking lizard.)* Hatchlings in particular, being completely new to this experience - take a few times to learn the procedure and often encounter problems with their first few sheds.

After the soak I use a moistened cotton bud and gently roll off the sloughed skin from the affected areas until it is finally removed. The hatchlings soon cotton on to what I am doing and invariably joins in the process! I recently had a hatchling that had done fairly well but had itself a new head cap where it had been unsuccessful removing it; it had dried and shrunk leaving the poor thing unable to open its eyes properly.

I gently applied moisture using a cotton bud to the old skin being very wary not to let water drip into the nostrils and once the skin had been softened enough I used a clinical tweezers to gently tug away the skin - be careful if you ever have to do this as you may encounter a similar situation to mine where the remainder of the skin was partly down the geckos throat. This necessitates a gentle but gradual pressure to slowly extract the partially swallowed skin without damaging the internals of the gecko. **N.B.** do not be tempted to use tweezers on tight skin remnants on toes - it's far too easy to misjudge and break the toes doing more harm than good. Use the cotton bud rolling technique and be patient!

After about 4 months geckos will usually get the process down to an art - but you should always carefully monitor the geckos feet and eyes whenever handling them for signs of bad sheds.

One area to keep an *"eye"* on is the eyes themselves. If a gecko is experiencing troublesome sheds it may not be successfully removing the lining on its eye and this can quickly develop into a very nasty complication where there will be multiple layers of unsuccessfully un-shed eye linings coupled with a build up of pus that can ultimately lead to blindness and/or loss of the eye itself.

These are commonly nicknamed **eye caps** or **spectacles**. They need to be removed by a vet - do not attempt to remove them yourself! They can get to this stage surprisingly quickly - so it's very important to monitor your Leo's. It can start with a simple thing like a bit of irritation from gritty substrate getting stuck under the eyelid.

This is almost certainly a result of poor diet, substrate and poor humidity - follow the advice given on this site and thankfully you should never have to witness this.

Mouth Rot

Mouth rot is a bacterial infection that can affect both the mouth and gums of a leopard gecko. Symptoms include bleeding gums, loss of appetite, blackening of the teeth, swollen mouth, and a cheesy, yellowish build-up between the teeth. This disease almost never occurs in healthy geckos, as it is generally brought on by dirty living conditions and low temperatures. It is extremely painful for the reptile and can prove fatal if not treated by a veterinarian as quickly as possible. To prevent mouth rot, maintain a clean Vivarium and be sure your pet is getting an appropriate level of heat.

Respiratory infections

With leopard gecko's respiratory infections can be caused by prolonged exposure to temperatures less than 73º F or humidity levels that are too high.

Low temperature causes a suppressed immune system, which allows respiratory infections to take hold. Symptoms are usually not easy to identify and may just be the signs that your Leo is in a distressed state and seems to be panting and leaving the mouth slightly open most of the time. you may hear the occasional sneeze too.

Mild cases can easily be cured by making the temperature in the enclosure slightly higher, a day time temperature of around 84-90 degrees Fahrenheit with a night time temp drop to no less than 80 degrees. If symptoms persist it is recommended that you seek expert advice from your local Vet.