JBL

TERRARIUM MANUAL 2.0

VORSPRUNG
DURCH FORSCHUNG
AHEAD THROUGH RESEARCH

JBL

Dear Terrarium Friends,

Surveys have shown that the number of terrarium owners in Germany is once more increasing slightly. Turtles are still in first place, followed by snakes. Insect keeping is in the last place, even though insects comprise an incredibly large animal spectrum with one million species! I am very happy about this increase and we are hearing similar reports from many other countries.
Sometimes we develop products for the aquatic field, like the JBL LED SOLAR lamps, which are also adopted by terrarium enthusiasts. When they proudly tell me how much better their terrarium plants are now growing it makes me very proud of my team, because we put a lot of effort and time into the product development and are delighted to hear such success stories!

I wish you all a lot of fun with this new edition of our terrarium manual!

Sincerely

Roland Böhme
General Manager JBL

The JBL success story

From a 30 m² pet shop to a worldwide aquarium product specialist

It all began in Ludwigshafen in 1960 with a small pet shop, just 30 m² in size, which Joachim Böhme, a trained chemist from Dresden, opened and so made his hobby his job. His love of animals, his white lab coat as his working clothes, and his friendly manner as well as his specialist knowledge all contributed to his success.
His business grew and the pet shop evolved into a wholesale ornamental fish business. As fish diseases became a problem, Joachim Böhme put his studies to good use and developed a highly effective remedy against ectoparasites, which he named Punktol.
Up to the present day, JBL, under the leadership of Roland Böhme, the son of the founder, has expanded its range to over 1000 products for the aquarium, terrarium and garden pond and has established a position as a leading producer in this field, exporting to 65 countries around the world.
Using the latest production and filling plant, all JBL products are manufactured and dispatched from Neuhofen. The company site covers over 12,000 m² and includes not only the Production plant and the 6,500 m² Logistics Center completed in 2008, but also the Research Center. Here many fully stocked aquariums and terrariums operate on a permanent basis in order to test all the products under realistic conditions. In order to take the in-house tests to an even more stringent level, JBL cooperates with leading scientific institutions throughout Europe, such as the Leibnitz Institute for Marine Science in Kiel (IFM Geomar), the Department of Measurement and Laser Technology at the University of Ulm and the Haus des Meeres in Vienna.

In addition to the usual experiments and tests in the laboratory, JBL biologists have for many years gained their insight into the habitats and life of the animals directly from nature in the course of JBL research expeditions and workshops. The protection of wildlife and environmental awareness are key factors for JBL. By means of a photovoltaic system installed on the roofs of the company buildings, JBL is able to generate sufficient electricity itself to meet the entire requirements of production. For many years JBL has been a supporter of the SHARK PROJECT, the largest international protection organization for sharks, as sharks are threatened with imminent extinction at the hands of man.

Aquarium enthusiasts know that they can depend on the quality of JBL products and appreciate the new innovations which JBL regularly launches on the market.
Michael Donner, Director of Development at JBL states, “The best ideas don’t originate from us! It´s the pond enthusiasts, aquarium fans and sales staff who phone us and tell us their ideas. We then apply our knowhow to convert these often amazing ideas into products at acceptable prices.“

Contents manual

You will find additional information online at the JBL Themeworld TERRARIUM about the topic whenever you see this icon.

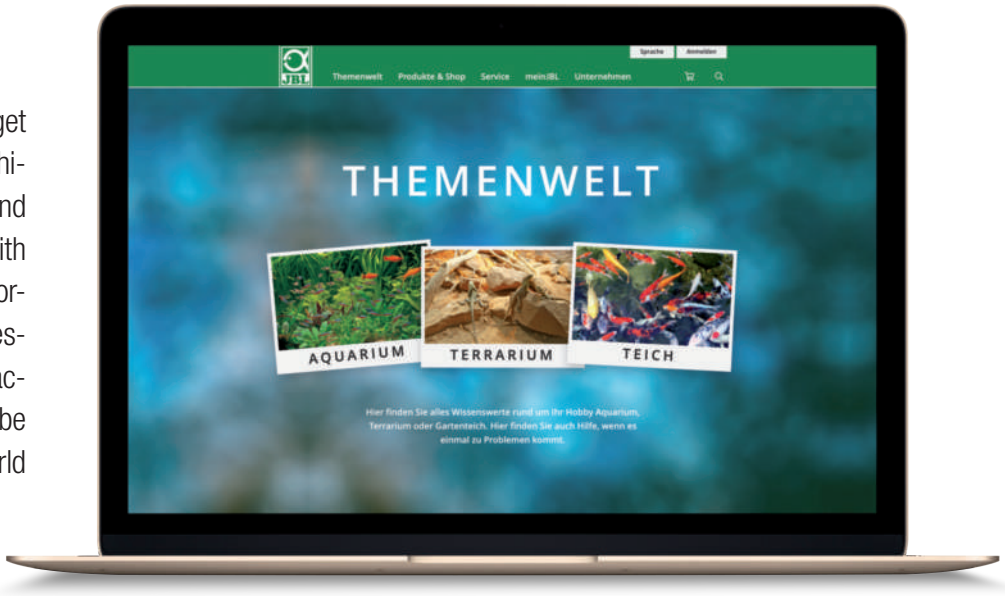
www.jbl.de/qr/100392

Contents products

www.jbl.de

Be a part of it

Experience JBL live – You can't get closer than this! We report on exhibitions, share important facts and exchange ideas and information with you. The JBL expert team looks forward to your questions and suggestions. And we offer you numerous activities and events which are not to be missed. Immerse yourself in the world of JBL!



myJBL

Become a part of the JBL world. Here you will receive information about your hobby and your JBL products. Don't miss any of our activities, such as the JBL Advent Calendar or the annual fan meeting. Your application gives you the chance to participate. Furthermore you will get unlimited access to additional information, contact with the JBL expert team and other useful material, such as the JBL Catalogue, the newsletter, guide booklets or a calendar.

Themeworlds

Here you will find all you need to know about your hobby aquarium, terrarium or garden pond. You will also find help here, if problems arise.

Newsletter

Never risk being out of touch again, and receive further information about your hobby and the JBL products free of charge. Subscribe today!

Themeworlds – Laboratories / Calculators

Solutions for your aquarium and pond problems. Ranging from how to solve algae problems, to how to diagnose fish diseases and the evaluation of water analyses. We are there with help, advice and online analyses which will solve the problems and answer your questions.

Blog

Would you like to learn some interesting facts about your hobby or have a glimpse behind the scenes at JBL? Our team of experts regularly share tips, knowledge, and further information not to be found on any packaging or product. Use this opportunity to discuss and ask questions. Experience the expert team as never before.

Catalogues / Manuals

Download the JBL Catalogue and the manuals as a PDF file. That way you'll always have all the information to hand. You can save the catalogue and the manuals on your device and print it out completely or in sections. You will find pictures and product descriptions of EVERY JBL product in the fields of aquarium, terrarium and pond here, all laid out in a clear format and with a large variety of additional information about your hobby.

Expeditions, Workshops and Travelogues

JBL undertakes yearly expeditions to the native habitats of ornamental fish and terrarium animals and collects data of habitats and makes observations about their way of life based on first-hand experience. Anyone who is interested in nature can accompany the JBL research team on the JBL expeditions. Next to good physical fitness a keen interest in nature is required, because the expeditions are not wellness holidays but nature tours sometimes in quite rough conditions. Anyone who wants to join us, needs to attach a photo to the application form and send it to JBL. The application form can be found in the terms and conditions of participation for the coming JBL expedition.

FAQ

There are many questions so interesting they are worth sharing with everyone. That's why we have the FAQ section (frequently asked questions), where you can look for your question using a key word or through an alphabetical search.

CUSTOMER SERVICE CENTER

Should you have questions concerning a JBL product or your hobby, the JBL expert team in the customer service center will support you with individual advice. Most matters can be solved with a onestep correspondence.

Tips and ideas for starting and maintaining a natural habitat

Terrarium animals belong to the most interesting animals of all. Some people are both revolted yet fascinated by spiders or snakes! A beautiful terrarium, whether a desert or rainforest terrarium is a treasure in every living room.

The choice of animals you make decides how high maintenance the terrarium will be. A tortoise needs very little care and eats food which is easy to source, while the colourful tree climbing frogs in a rain forest terrarium, for example, need a little bit of gardening work for plant care and some small live flies. You will be rewarded with a fantastic slice of jungle with small jumping diamonds in it.

Types of terrariums

Rainforest or desert? About the different possibilities with and without water

The rainforest terrarium

A breath of jungle in the living room

We automatically associate the term “rainforest terrarium” with a jungle behind glass and high humidity or high temperatures that remain more or less constant. This is closer to the truth than when we think about desert terrariums. The characteristics of a rainforest terrarium climate really are relatively high temperatures of 25–30 °C with mild cooling-off at night and relatively high humidity between 70 and 90 %. The level of humidity and temperature required may vary from one species to the other. Here, as elsewhere, it’s vital to get hold of any relevant information to make sure you are meeting your reptiles’ needs and caring properly for them.

JBL TerraBasis or JBL TerraBark are ideally suited as substrates. Rainforest terrariums need to be densely planted. Please find out which plants are suited for the terrarium climate you have selected.

For example, if you plan to keep animals with adhesive toe pads (e.g. day geckos), the leaves of the plants need to have smooth surfaces. Otherwise, the animals will adhere to the glass panes most of the time instead.

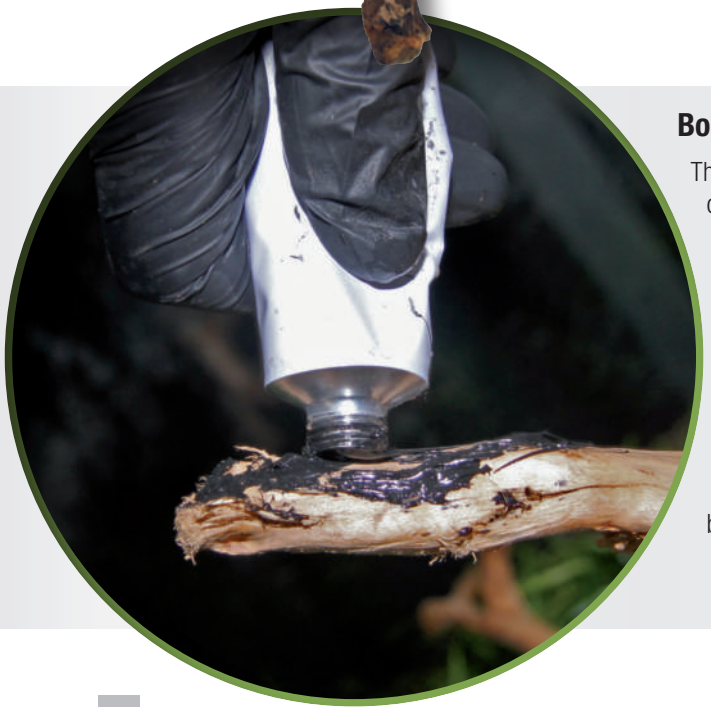
With some terrarium inhabitants, it's better not to have any water features at all. Please consult your specialist dealer for further information. There is no need for a drinking bowl in a rainforest terrarium, as the animals cover their water needs with water droplets formed by the humidity. Water falls can also be integrated into the terrarium. Not only are they decorative, they also effectively increase the moisture in the air. Chameleons are animals which prefer moving water as their source of water.

The weight of the animals also needs to be taken into consideration when selecting your plants. Plastic plants are an option if you have relatively heavy animals such as tree pythons, which would crush live plants.

Water elements can also be integrated into the terrarium. In this case, it is important to make sure that the animals can't accidentally drown. The water needs to be kept shallow and it needs multiple places where the animals can easily get out.

All kinds of moisture-resistant branches or cork bark are suited as structuring elements in a rainforest terrarium. Wooden roots sold for use in aquariums (e.g. JBL Mangrove Roots) are ideally suited, as they won't get damaged by the moisture. Branches decorated with air plants (bromeliads) are an eye-catcher in any rainforest terrarium. The side panels and rear panel can also be decorated when setting up the terrarium.

This may be done by gluing flat stones, plant elements made of coconut fibre or your own creations made of processed styrofoam covered with a primer and paint to the panels later on. You can let your imagination run wild when setting up a rainforest terrarium. At the same time, though, you must always bear the animals' needs and requirements for easy cleaning in mind.



Bondings in terrariums

There usually are two different kinds of bondings: dry bondings or wet bondings in areas which never really dry out. For dry bonding please decide whether the bonding needs to stay slightly flexible, e.g. when using stones or wood decoration, or whether it's a rigid object. For flexible bonding we recommend JBL AquaSil transparent, which is a non-toxic black or transparent aquarium silicone. For rigid bonds a non-toxic superglue, such as JBL ProHaru Rapid is the first choice. If the gluing spot is under water or at a moist patch there is JBL ProHaru Universal 80ml at your disposal (also with compressed air cartridge). It even hardens under water, but needs 24 h to set.

The desert terrarium

A breath of desert in the living room

We humans generally think of the desert as a very hot habitat. When we take a closer look, though, we find that the habitats of reptiles in the desert are characterised by very high fluctuations in temperature, depending on where the animals are. At night, temperatures drop quite dramatically. Desert animals deliberately alternate between warm, sunny areas and cooler, shady places in their habitat in order to reach and maintain the temperature they need for metabolic processes and typical behaviour (courtship display, territorial battles, etc.).

It should be noted that desert animals in particular also need some areas with temperatures of 50–60 °C in a terrarium, although they do not spend all day there. It goes without saying that the time spent under the source of heat is also influenced by the air temperature and wind movement in their natural habitat.

In the spring when air temperatures are cool and the winds are strong, they often need to bask in the sun for extended lengths of time in order to reach their preferred temperature. In contrast in the summer when the air temperature is 38 °C and there is no wind, they avoid direct sunlight in order not to overheat above their ideal temperature (35–42 °C for many desert species). The varied distribution of heat is thus a very important factor when heating a basin. The animals always need to be able to move to cooler places when they have warmed up sufficiently.

By the careful selection of technical equipment and their use (e.g. never cover the entire floor of a terrarium with a substrate heating, etc.), the terrarium keeper must ensure that climate gradients are created in the terrarium rather than a uniform sauna climate. Setting a temperature gradient in the terrarium is especially important in this context. No reptile can survive a core temperature of 48 °C.

A desert terrarium can be set up as follows: Any kind of sand is suitable as a floor covering. JBL offers under Substrate you'll find varicoloured types of sand under the name JBL TerraSand natural red, JBL TerraSand natural yellow and JBL TerraSand natural white. JBL TerraSand natural red is supplied damp and can be shaped while it is being spread. After drying, it hardens to a certain degree, thereby permitting burrowing animals to dig caves.

Depending on the animals' needs, the terrarium can be structured with stone constructions with or without caves. Stone constructions should be glued together for the interest of the safety of the animals and the glass. This can be done by using non-toxic aquarium silicone such as JBL AquaSil transparent.

Weight may pose a problem with stone constructions in a large terrarium. Stone imitations made of plastic which can be found in specialist shops are recommended in this case.

Dry woods are also well suited as decorations in desert terrariums. Appropriate plants such as succulents or similar complete the picture. Cacti should only be used in the form of copies made of plastic due to the potential risk of injury. In general, live plants barely stand a chance of survival if there are larger-sized, physically active animal species in the terrarium. Plastic imitations which are available in specialist shops are also well suited in such cases.

The tortoise terrarium

This is basically set up like the desert terrarium. However, the floor covering should NOT consist of sand. Tortoises need a large floor area to move around. The substrate has to be covered with an approx. 2 cm thick layer of JBL TerraBark.

A large bent piece of cork can serve as a shelter. Stones and stone plates can be placed in the terrarium, but make sure there aren't any sharp edges.

A heat emitter and a heating stone offer the required heat and will quickly become a favourite spot. A drinking bowl and a feeding bowl for vegetarian food should be provided in a sufficiently large size.

Lighting for tortoises

Tortoises are sun worshippers. Just a few species live in the rainforest and need less sun and therefore less UV radiation than the wide range of species which live in sun-drenched regions. Therefore the lighting needs to produce heat, UV-A and UV-B radiation.
You will find detailed information about lighting here: page 30

Heat for tortoises

Most species come from warmer regions and therefore need a heat source. Since a temperature reduction at night is almost always useful, the light source can also serve as a heat source. When the light goes out, the temperature drops too.
You will find everything you need to know about heat in the terrarium here: page 40

The animal size

How large should your terrarium be?

Please remember the terrarium you need has to correspond to the maximum size of the tortoise species you are keeping. With tortoises, of course, it's not the height but the floor area of the terrarium which matters. A good help is the following formula: shell length (of the largest tortoise) x 8 = terrarium length, terrarium length: 2 = terrarium width. For just a few genera and species you may use the factor 4 (Homopus spec., Malacochersus tornieri, Psammobates spec. and Pyxis spec.). The height should be about 60 cm to prevent adult animals from escaping out of the terrarium.

If you purchase a second-hand terrarium it definitely needs to be carefully disinfected before use.

For further details please refer to all relevant literature and talk to your specialised dealer.

The aquatic terrarium or paludarium

The aquatic terrarium, aqua-terrarium or paludarium (lat. palus = swamp) is basically The rainforest terrarium combined with an aquarium. Breathtaking tropical landscapes with waterfalls and streams or lakes can be built in large aqua-terrariums.

The water section of the paludarium

An aquarium in the terrarium

Larger water sections in the terrarium, which are more than just drinking bowls, are to be treated as an aquarium. For example you will need a filtering system to keep the water clean, clear and low on bacteria at all times. In the JBL website category “Essentials/Aquarium” you’ll find all the relevant information about aquariums.

JBL THEMEWORLD AQUARIUM

A great help for your hobby - a 200 page reference book. Here you will find all aquatics-related issues with illustrations. Beginning with an outline of the subjects (aquarium types – size/shape – technical items – setting up – water – plants – animals – maintenance – problems), it leads you to the chapters dealing with each main subject, which can contain up to 10 subsections. Without exception every aspiring or current aquarium owner will find the comprehensive information they are looking for.

www.jbl.de/qr/100390

For turtles

Aquariums with large floor areas and low heights are suitable. The depth of the water needs to correspond approximately to twice the length of the turtles' shell. The right terrarium size is described in more detail in an expert report about the minimum requirements for the keeping of reptiles (1997): Minimum requirements for reptiles according to the BMEL (Federal Ministry of Food and Agriculture). Here the terrarium length is the shell length times 5 and the result divided by 2 is the terrarium width. The resulting sizes always refer to 2 animals. Additionally to the water section a terrestrial section needs to be calculated. For more than 2 animals please add about 10 % more floor area for each further animal.

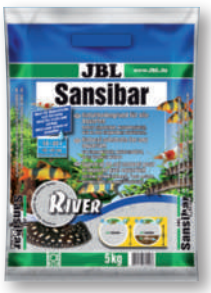
Good water quality can be attained by filtering the water with an internal filter (e.g. a JBL CristalProfi i100 greenline) which can also be mounted horizontally. A water conditioner (JBL Biotopol T) has to be added to fresh tap water to neutralise all of the harmful substances within it. A partial water change of a third of the water volume ought to be carried out every two weeks. The aquatic section is often difficult to plant, because the turtles like to eat a lot of plant varieties.

The terrestrial section needs to be set up so the animals can climb up easily and provide enough space for all the animals at the same time. A terrestrial section can also be made of cork, wood or rocks. Mount a heat source at a sufficient distance over the terrestrial part. The substrate of the terrestrial section should always have a minimum depth of twice the female's shell width.

Free-range keeping

Since most turtles originate from the subtropics or tropics, free-range keeping depends on the local climatic conditions. If it becomes too cold outside the turtles need to be brought inside into an indoor aquatic terrarium. The European pond turtles (Emys orbicularis) are hardy, but they are a protected species. Only animals with a breeding certificate may be kept in private hands.

Marsh plants are very well suited as decorations, even if the animals nibble on the leaves occasionally. The water temperature of around 25 °C can be kept constant by an automatic heating element (e.g. the JBL ProTemp S 100) which maintains this temperature. As substrate we recommend JBL Sansibar RIVER or quartz gravel with medium grain size.



Paludariums for frogs, toads and newts

South America's incredibly brightly coloured poison dart frogs make almost every observer want to keep them with a bit of jungle in a beautiful aquatic terrarium.

A terrarium with a floor area of 60 x 40 cm is suitable. The height depends on the layout above the water section. The poison dart frogs only need a small water section. However a covering of leaves on the floor is very important. Part of the foliage needs to be dry! To drain off any water and help any wet leaves to dry out it is advisable to use an underlying substrate of expanded clay or JBL Manado. A spawning cave, some wood, e.g. JBL Mangrove Roots for climbing, and rainforest plants form the design. For some species the reproduction of a small watercourse can be useful. Red-eyed leaf frogs need a bigger water section than poison dart frogs. Green tree frogs and other tree frog species need stable and large-leaved plants. And since these frogs only eat living insects the terrariums have to be hermetically sealed. But a means of ventilation is also important. So please don't just cover a terrarium with a pane, there's more to a frog terrarium than that!

There aren't many general rules you can apply to your terrarium, since toads reach widely different sizes and come from very different habitats. Toads need a larger floor area (80 x 50 cm) than frogs and a lower height because they don't climb much. The European fire-bellied toad is an exception which needs a 1/3 terrestrial and 2/3 water section.

Newts and salamanders in the aquatic terrarium

The most popular amphibians have to be axolotls. But because they never leave the water they don't need an aquatic terrarium, they need a real aquarium. Of course they also can be kept in the water section of an aquatic terrarium if it is big enough.

Salamanders and newts are typical paludarium dwellers which need their terrarium divided into approximately a 1/3 terrestrial and a 2/3 water part. It is always very important to avoid waterlogging the moist section when setting it up. The water always needs to be able to run off downwards. That's why it's important to form a base layer of expanded clay or JBL Manado, and create a leaf cover on top. Stones, wood, mosses and ferns provide further design features.

Lighting

Amphibians don't need any UV radiation, so the lighting can be selected to either create light without heat or light with heat development, depending on the animals' requirements.

You will find detailed information about lighting here: page 30.

Heat

If your amphibians start to require heat as well as light, you can either produce the heat via the lamp or separately with the help of heating mats or heat emitters.

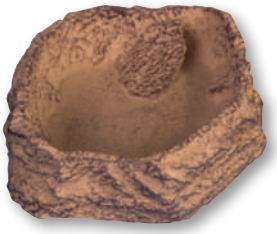
You will find everything you need to know about heat in the terrarium here: page 40.

Terrariums for insects and arachnids

Fans of spiders, scorpions and most insects have an enormous advantage: the terrariums are relatively small, compared to tortoise or lizard terrariums. Although tarantulas or scorpions are longer than a small lizard, their radius of action is significantly smaller and is not limited by a small terrarium.

The right terrarium setup for spiders, scorpions and insects

In the following we'll offer some advice for the setup of the terrarium for individual species or groups. Even within a group, for instance tarantulas, the terrarium setup may vary greatly. If you want to keep a different species to those mentioned, ask your terrarium retailer for details.



Tarantulas

Tarantulas are always kept individually and for most a terrarium measuring 40x40x30 cm (LxWxH) is suitable. The bottom substrate ought to have a layer thickness of 8-10 cm. Depending on the species, the substrate needs to be selected individually.
All spiders need a small and flat drinking bowl. These bowls are available in various colours, so that you can select them to match the substrate. The JBL drinking bowls have the advantage that the feeder animals can save themselves from the water by using a small rescue ladder.
Any further design features need to be adapted to the specific needs of the species. Some prefer stones, others wood and leaves, while others like climbing opportunities.

The popular American pink toe (Avicularia metallica), for example, needs moisture-retaining material, such as JBL TerraBasis or JBL TerraCoco Humus.

Whereas for Chilobrachys huahini or Grammostola actaeon you should choose a mixture of soil and sand.

In general a hiding place, e.g. made of curved cork, is necessary. A few tarantula species build their hiding places by themselves (C. huahini). Chromatopelma cyaneopubescens needs a vertical place to hide (propped up cork tube).

Scorpions

Scorpions are not only found in deserts, they are also in rainforests. The yellow fat-tailed scorpion (Androctonus australis) comes from the steppes and deserts of North Africa. Its terrarium with the minimum dimensions of 30x20x20 cm (LxWxH) needs to be set up with sand (JBL TerraSand natural yellow or JBL TerraSand natural white) and stones, as well as with a gnarled piece of wood. A flat water bowl is a must.

The emperor scorpion (Pandinus imperator) lives in the rainforests of Central and West Africa. Its terrarium needs the dimensions 60x40x40 cm (LxWxH) and should be equipped with soil as its substrate. Plants can be used, but are not necessary for the animal. The humidity needs to be 60-80%. JBL Cork Bark provides a hiding place for the animal.

Insects

Praying mantises, leaf insects, walking leaves, grasshoppers and beetles are very popular terrarium animals. Their demands on the terrariums vary considerably.
Praying mantises do not need much space. Small terrariums with a 30 cm edge length are ideal. A slightly moist soil-sand mixture is best for the substrate, and a setting to a 25-30 ° C daytime temperature and a 22 ° C nighttime temperature with about 70% humidity. Please remember to add a lot of branches with leaves for climbing.

Stick insects and leaf insects (Phasmatodea) are especially popular with children. Terrariums with a 40 cm edge length are ideal for these animals, and they like to be kept in small groups. For a substrate use a layer of about 3 cm with coconut or terrarium soil (JBL TerraCoco Humus or JBL TerraBasis). Forage plants are placed in small pots.

Beetles like flower chafers and ant-like flower beetles from Africa are very popular. Terrariums measuring 30x20x20 cm (LxWxH) are absolutely sufficient. The beetles love a thick soil layer of leaves, forest soil and rotten wood.

Centipedes and scolopendra

Unlike the highly toxic scolopendra species, crawling millipedes (in the order of Julidae) are completely harmless. They mostly live in the tropics almost all over the world. Scolopendra are predators and need terrariums with an edge about 40 cm long. A slightly damp substrate from a sand-soil mixture with moss pads and a piece of cork for a hiding place are ideal. A flat drinking bowl is necessary.

The right light for arachnids and insects

Arachnids or insects don't need lighting which emits UV! You can therefore choose lighting that either produces heat or not, depending on whether you want to heat up the terrarium during the light phase or not. Since arachnid and insect terrariums are often quite small, it is important to ensure that the lighting is selected to match the size of the terrarium and that heat protection screen for the lamps have not too large slots, so that the animals don't come into contact with the hot lamp.

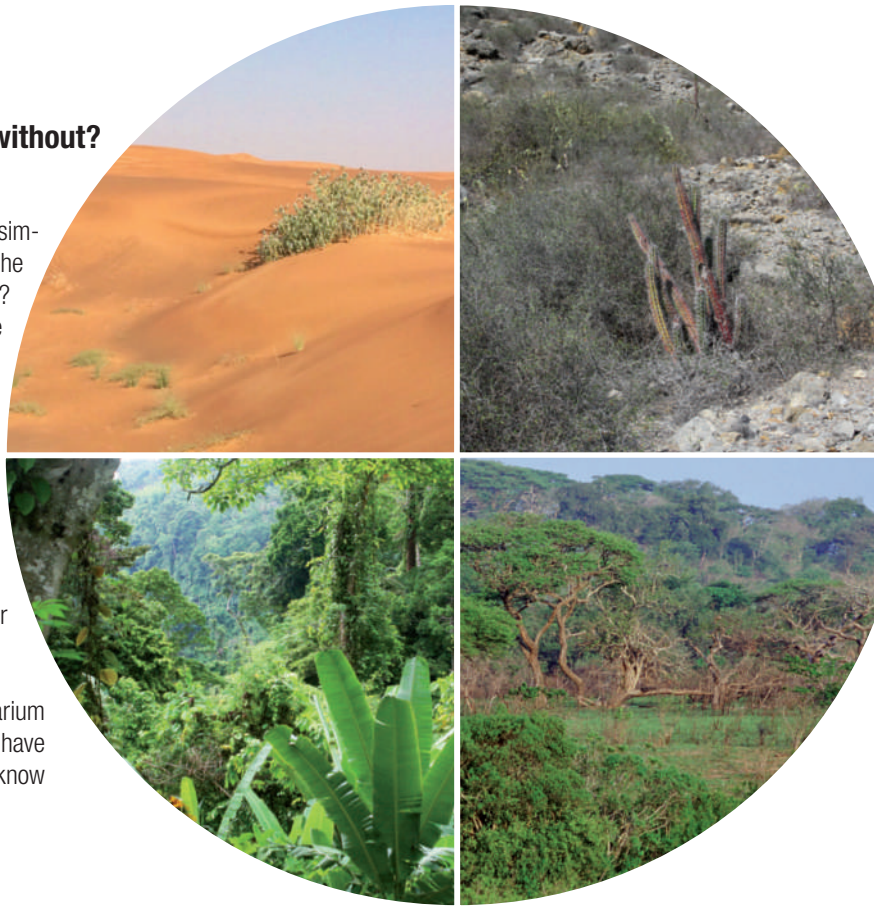
The temperature control of terrariums for arachnids and insects

You have the choice of producing the right temperature with a lamp or a heating mat. For the lamp please remember to use a heat protection screen to protect the animals from coming into contact with the lamp, and don't forget that the lamp will only produce heat during the lighting phase. Often this is exactly what is wanted, so that there is a reduction in temperature at night. If you do need a higher temperature during the night, you can always use a heating mat, like the JBL TerraTemp heatmat.

Planning

Choose the location of the terrarium, determine the dimensions and take the technical factors into account.

Which type of habitat is easiest to reproduce in the terrarium?



Desert or rainforest? With a water element or without? Jungle floor area or treetop?

Of course, it's completely understandable to want to know how simple it is to reproduce a habitat, but you should actually proceed the other way around: Which animals would you like to take care of? The species would then specify the terrarium type. But the space you have available is also a decisive factor.

Let's start with the basic maintenance and design: A desert terrarium (The desert terrarium) is definitely easier to set up and requires less care than a jungle terrarium (The rainforest terrarium) full of tropical plants. But the difference in maintenance levels is not that large. That's why it comes down to your choice of animal or your own taste when deciding what kind of terrarium you prefer. By the way, you should also find out whether the animals you are interested in are active by day or night!

Whether you choose a desert or rainforest terrarium, every terrarium type needs a certain amount of maintenance. In one case, you have to be more active with a water sprayer, in the other you need to know how to use heating technology.

Once you've decided on a terrarium type, it's time for the details: Do your future desert dwellers live in rocky or in sandy biotopes? But there are also stone deserts and there are oases in the desert.

For rainforest dwellers, there are also fundamental differences: Do the animals live on the riverbank, on the jungle floor or in the canopy of rainforests? Is it really a rainforest or more a tropical or subtropical dry forest?
Using the Internet or specialist books is a very good way to source images from the natural habitat of your prospective pets. You can also browse the picture galleries of the JBL expeditions, because our focus is on habitats and accordingly we have a lot of pictures in stock

You have plenty of freedom when reproducing a habitat in your terrarium. There are only a few essentials to keep in mind: The substrate plays a vital role for many animals. Make sure no waterlogging occurs in damp ground conditions. Water and food bowls should always be clearly visible. The JBL feeding/drinking bowls, such as JBL ReptilBar GREY, are designed to replicate stone and match the design of the terrarium better than clay bowls.

The reproduction of a habitat also includes climatic factors. Light, humidity and day or night temperature can be crucial for the well-being of the animals. This is no problem at all when you use the right technology. Just find out which factors are important for your animals. We can then explain how you can achieve these conditions.

Humidity

How to achieve the right humidity in the terrarium

There are several ways to adjust the humidity in the terrarium. For a start a larger water surface increases the relative humidity significantly! Manual spraying with water is the fastest and easiest way to achieve the humidity you want, but it doesn't last long because your (necessary) terrarium ventilation will soon reduce the humidity again. Automatic mist and spray systems are also available. It is only important that you remember to adjust the humidity differently to suit the day and night values! Permanently high levels of moisture are virtually non-existent on our planet!

Desert terrariums

Setting up a dry terrarium

In desert terrariums with sand, stones, plants and wood, it is vital for the animals that their artfully crafted stone structures are stable and do not collapse or become dislodged. A light gluing of the stones and / or the wood is important. JBL Pro-Haru Universal 80ml is ideal for this. If you do not use too much glue, you can also separate the stones again if necessary. Use photos or descriptions of the biotopes to check which plants are found there. If animals aren't used to prickly cacti, they could cause injuries.

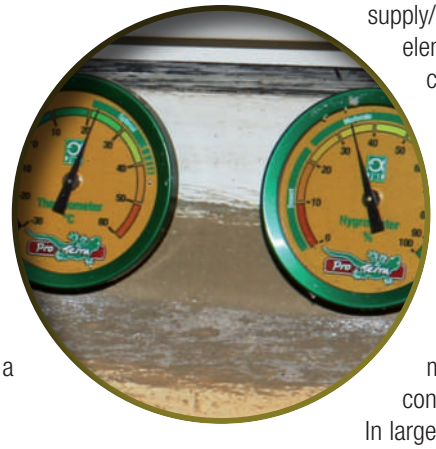
In most deserts on earth there are huge differences between daytime and nighttime temperatures. This can easily be simulated with the help of heat technology. It is important that in addition to "sunbeds" there are also colder terrarium regions the animals can retreat to.

The location of the terrarium

With a few exceptions, any indoor location is suitable. However, make sure you choose a place where you can observe the animals comfortably from your own favourite spot. You should also be able to reach the terrarium for cleaning, feeding, etc. without having to contort yourself! And make sure not to choose a location with the risk of overheating from sunlight, such as a spot near a window. Attic flats which are very warm in the summer and barely cool off at night are not suited for keeping heat-sensitive species. Last, but not least, the weight-bearing capacity of the surface under the terrarium must also be taken into account.

The climate in your terrarium

The climate in the terrarium is the most important factor for your animals' wellbeing. The animals will only be able to display their full repertoire of behaviour and lead a healthy life if the natural climate of their immediate habitat is reproduced as closely as possible by a skilful application of equipment.



The most important climatic factors in a terrarium are made up of the temperature zones (the air and the floor/substrate and of basking spots with high temperatures); the lighting (duration, intensity and quality of light); the relative humidity; and ventilation (air supply/removal). As in the wild, these individual climate elements impact each other and are subject to the changes occurring in the course of a day.

The relative humidity normally decreases as the running time of the lighting and heating equipment increases. Please remember this when choosing your terrarium. The individual climate parameters usually change quickly in a small tank, and therefore need to be optimised continually with the use of sophisticated control technology or repeated manual intervention. In large tanks, the climatic factors change much more slowly and it is easier to create zones with different microclimates (zones of different temperatures and humidities) so the animals can seek out places with the climatic conditions they prefer at a given time.

Size and shape of your terrarium

Nowadays, specialist retailers stock a wide range of terrariums, mostly with glass panes held together with silicone adhesive. These can usually be accessed from the front by sliding doors. Small terrariums for invertebrates often come with folding doors on the front instead of sliding panes of glass. Building your own terrarium is barely worth the effort nowadays.

Make sure you select the format, volume and technical equipment of your terrarium in accordance with the requirements of the individual species, their size and their need to move around. As a general rule, the larger, the better! The equipment needs to match the volume of the tank exactly, so that there are no immediate losses due to overheating, should the temperature control system fail. Only use suitable materials to structure the habitat to provide the animals with spots to retreat to without cluttering the terrarium or compromising hygiene.

The floor of the terrarium is, of course, of major importance to your bottom dwellers, while the height of the terrarium is important for your tree dwellers. Due to the diverse needs and adaptations of the animals, a strict division of terrariums into a few standard types of terrariums isn't very helpful, and the boundaries between the different types are often blurred anyway.

Ventilation and moisture regulation

Apart from the light and the heat, the drinking water supply, relative humidity and the right degree of substrate moisture are also very important for the animals' well-being. Reptiles and, to a greater degree, thin-skinned amphibians, constantly lose water, particularly through the skin, as they respire.

This is especially true with those amphibians which absorb their water intake almost exclusively through the skin and in contrast to other terrarium animals, barely drink at all. In addition to cleaning and refilling the water dish, your daily maintenance should also include regularly spraying the inside of the terrarium with water, at least once every morning. This also applies to desert terrariums because there is often fog or dew in the morning hours in regions with high daytime temperatures and significant decreases at night. Many animals are used to meeting their moisture needs as water condenses on their body or on objects in their close environment.

Besides this, clean the substrate of your aqua-terrariums regularly with a gravel cleaner such as the JBL AquaEx Set 10-35 and clean the aquarium panes with a glass cleaner such as the JBL Blanki Set. Carry out a weekly partial water change of around a third of the water volume, similar to with an aquarium. Without regular cleaning in the mostly warm terrarium climate, bacteria which are very detrimental to the animals' health will form very quickly in the reservoir of the room fountain or waterfall. These often contain just a few litres of water.

Some species of animals, e.g. chameleons, prefer moving water. Young animals don't need more than the water drops that collect on leaves or objects after misting, whereas adult animals often require more. In this case, we recommend you add a drip system to supply water over an extended period of time. Thus, the animals have the opportunity to take in water according to their own needs and you can occasionally add vitamins (JBL TerraVit fluid).

You can supply your pets with moving water by putting in a waterfall, e.g. a ready-made model or indoor fountain, or by setting up a larger-sized waterfall complete with a water reservoir on the rear wall. In this case a consistently good water quality is important. JBL offers very reliable and small-scale water pumps for such purposes (e.g. JBL ProFlow t300) or the higher performing JBL ProFlow u1100.

The water supplied to a terrarium requires a certain maintenance if you don't want a murky brew laden with bacteria. These bacteria can endanger the animals' health. Maintenance of the drinking vessels is relatively simple - they just need to be cleaned and refilled with fresh water daily. When it comes to larger water sections in a terrarium, e.g. in combination with a waterfall, the maintenance required is comparable to that of an aquarium.

How do you change tap water into biotope-like water?

Treating the water in aquariums and in water sections of terrariums

A larger water section in the terrarium can be regarded as a separate "aquarium". Therefore, all the principles and rules that apply for an aquarium also apply here. You will find all the information you need in the JBL website category “Essentials/Aquarium”:

JBL THEMEWORLD AQUARIUM

www.jbl.de/qr/100390

In a nutshell: After the water section has been filled with mains water, add a water conditioner (JBL Biotopol T) to render any chlorine present harmless and absorb harmful substances, such as heavy metals.

Internal and external filters from the JBL CristalProfi and ProCristal range can be used to filter the water. These are available for various litre capacities. The JBL CristalProfi e702 greenline is suitable for water sections of 150 litres. Internal filters, which can also be installed horizontally at low water levels, might be better suited for small water vessels up to 100 litres. JBL also has a filter series in its range for this purpose. For water sections with contents of 40 to 80 litres the JBL CristalProfi i60 greenline is perfect.

It is imperative you do a regular water change of approx. 30 % every 2 weeks. The water you replace always needs to be conditioned to meet the animals‘ needs using JBL Biotopol T.

If you keep turtles, we strongly recommend you use a very powerful external filter (e.g. the JBL CristalProfi e402 greenline for 40-120 litres) because of the animals’ very high metabolism. In this case it’s always better to select a model one size bigger than that recommended for the corresponding water volume. With JBL EasyTurtle JBL offers a product that effectively accelerates the degradation of the large amount of waste produced by turtles, thereby preventing unpleasant odours. It contains specially bred cleansing bacteria which are bound to a mineral granulate. These granulates are simply sprinkled onto the bottom of the water section or integrated into the substrate.

Ventilation of your terrarium

The need for fresh air and all other climatic factors vary significantly in accordance with their species and origin.

Nowadays, the terrarium is usually ventilated through two air screens mounted on different sides which prevent stagnant air from accumulating. Fitting a ventilation grid under the front panes has the advantage of keeping the view into the terrarium unobstructed.

The air in a terrarium heats up from the heating mats, e.g. the JBL TerraTemp heatmat or cables on the floor, the lighting and the radiators, such as the JBL ReptilHeat, and then rises subsequently. Some of the warm air escapes through the ventilation grids, usually in the lid of the terrarium, allowing fresh air to flow in through the grid under the front pane. The air circulation helps keep the panels and furnishings dry. If there is no ventilation in the lower third of a humid terrarium, stuffy congested air saturated with moisture forms quickly, causing the front panes to fog. This is why aquariums are only suited for keeping animals from dry regions (e.g. leopard geckos) and not for setting up a rainforest terrarium unless ventilation slits are subsequently inserted near the floor.

Safety

There are two requirements for the openings through which you operate your terrarium: they need to give you unrestricted access to all areas of the terrarium and they need to be easy to close so that your pets do not escape while you are working there. Most front panels can be moved sideways or have small access openings.

If other people are left unattended in the room with the terrarium, it is highly advisable you lock the terrarium. Some terrarium locks are easy to install, such as the JBL TerraSafe, which provides good security. Especially when children are present we highly recommend attaching a lock, to prevent them from playing with the animals. The enjoyment is rarely mutual and - while we understand the children's point of view fully - it should be averted.

Ventilation for diurnal reptiles

In a terrarium, the optimum moisture can be achieved by increasing and decreasing the size of the ventilation openings. The heat will not escape as quickly and as much as from an open aquarium.

Installation & technology

Select your lighting and use the right technology and the most suitable accessories to help you to create the climatic conditions you want.

The lighting

As cold-blooded animals, terrarium animals are far more dependent on light, i.e. the quality and intensity of light, than warm-blooded vertebrates. Activity, food intake, digestion and resting phases are influenced by the alternation of day and night, and especially by the intensity of the light.

Besides this, many terrarium animals associate light with heat and seek light places in the terrarium in order to „bask in the sun". These considerations are especially important when choosing heating equipment for desert terrariums. There are differences in the yield and quality of light depending on the light source used. Fluorescent tubes, for example, provide a lot of light with little heat production, whereas light bulbs convert a major share of the energy taken up into heat and only a small share into light. The question as to which quality of light is best suited for a specific terrarium is easy to answer if we take a look at nature: For millions of years plants and animals have been adapting in a long evolutionary process to what the sun sends down to the earth.

At the same time, all of the plants and animals can display their full natural colouring. Metal halide lamps (e.g. JBL ReptilDesert L-U-W Light alu) are the top choice for animals which require sunlight, ultraviolet light (i.e. diurnal animals) and heat. They offer a full spectrum that simulates sunlight and includes UV-A and B radiation, along with heat emission for the terrarium. The temperature in the terrarium decreases after the lamps are switched off, thereby simulating the desired nighttime drop in temperature. The JBL LUW lamps are available in three different wattages and two versions, depending on whether the animals require a lot of UV radiation (JBL ReptilDesert L-U-W Light alu) or less UV radiation (JBL ReptilJungle L-U-W Light alu).

The fluorescent tubes sold by JBL are known as full-spectrum tubes and come in two different versions for terrariums: JBL SOLAR REPTIL SUN T8 and JBL SOLAR REPTIL JUNGLE T8. An essential factor in the lighting of terrariums is the UV light in the UV-A and UV-B ranges.

Depending on their origin, terrarium animals can require a lot or a little UV light for their well-being. UV-B stimulates the synthesis of Vitamin D3 from its preliminary stage Vitamin D2. UV-A stimulates pigmentation. Don't forget that glass absorbs around 50 % of the UV radiation, so always install the lamps inside the terrarium.

The distance between the light source and the animal is another important factor: The information indicating how much radiation is emitted at which distance from the lamp is to be found on the lamp itself. If the terrarium is high, the animals can get closer to their UV source if they are provided with something to climb on.

The following applies to animals that require UV: These animals will fall ill even if fluorescent tubes emitting UV radiation are used! You'll need to mount an additional UV spot lamp, like the JBL UV-Spot plus, or a metal halide lamp, such as the JBL ReptilDesert L-U-W Light alu. When using metal halide lamps, please remember that they should only be operated with special electronic ballasts (JBL TempSet Unit L-U-W).

For all lamp types that do not become too hot, the use of a high-quality reflector (e.g. JBL TempReflect light) is highly recommended because it doubles the light output.

Various light sources over ONE terrarium

In smaller and square terrariums, a lamp is often used which, for example, only emits light and heat without UV for spiders (spiders do not need UV radiation). For larger and especially longer terrariums, however, the same type of lamp is never used everywhere. UV spotlights only need to be positioned in some places or even only in one place. The animals actively visit this place. Since the remaining part of the terrarium should not remain dark, especially when plants are used, lamps are also needed there, but they do not have to emit UV. So you can choose lamp types that are, for example, energy saving and still give a perfect light for plants. The JBL LED SOLAR NATUR, JBL SOLAR REPTIL JUNGLE T8, the energy-saving lamp JBL ReptilDay and the JBL Reptil LED Daylight 12W are suitable for this.

For energy savers and animals which don't need UV light

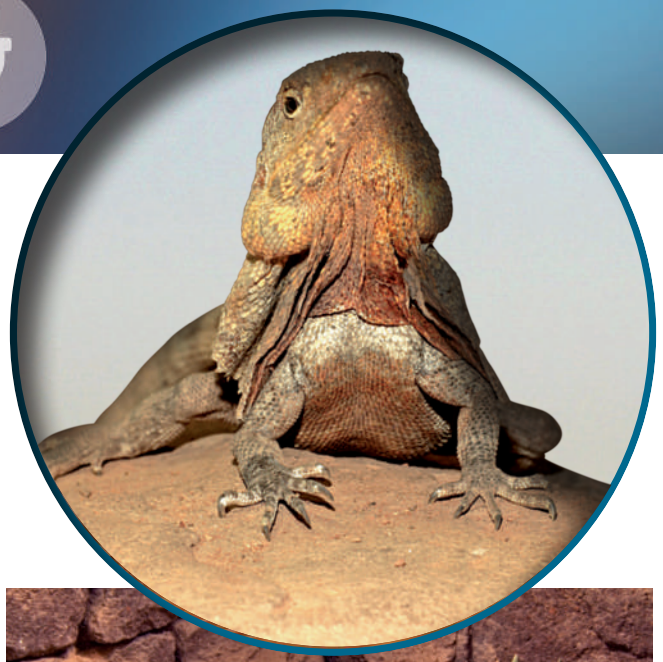
Spiders, scorpions, frogs and some nocturnal animals do not need UV radiation. Terrarium friends confirm this statement because they have successfully bred these species for many generations without UV lighting. In the Internet and in specialized books there are quite contradictory statements about the UV requirements of some animals.

If you want to illuminate your terrarium without UV radiation, the following lamp types are possible, depending on shape and size: JBL LED SOLAR NATUR, JBL SOLAR REPTIL JUNGLE T8, the energy-saving lamp JBL ReptilDay and the JBL Reptil LED Daylight 12W.

All these lamps have in common that they hardly generate any heat and that an additional heat source is necessary when heat is required. Plant growth is also ideally promoted by all these UV-free lamps. Here, the height of your terrarium is more decisive: For high-sided terrariums, stronger lamp types such as JBL LED SOLAR Natur need to be selected.

Light for the desert terrarium

The desert habitat is distinctive for its extreme light. The ultraviolet light of the sun can reach the ground and the animals unchecked. Day-active animals from deserts and steppes require high amounts of light and UV, and actively seek out warm locations. Since light is associated with heat, irradiated areas are instinctively visited. Nocturnal animals, such as the leopard gecko, do not need UV light, as proven by their successful breeding for many generations. Advantage: heat zones can be set up at certain spots, so that it is possible for the animals to visit cooler regions!



The fluorescent tube JBL SOLAR REPTIL SUN T8 supplies 36 % UV-A/8 % UV-B as T8 version (63 %/12 % with as T5 version), which is the intensive UV-light suitable for a flat desert terrarium. As fluorescent tubes with high UV components only emit relatively little light in the visible range, a combination of full-spectrum tubes with a high concentration of visible light is strongly recommended. The JBL SOLAR REPTIL JUNGLE T8 is the appropriate option here. It offers ample light of full-spectrum quality in the visible range with a low concentration of UV, namely 2 % UV-A and 0.5 % UV-B.

A desert terrarium with a depth of approx. 50 cm can be provided with suitable lighting by using 1–2 JBL SOLAR REPTIL SUN T8 tubes and 2–3 JBL SOLAR REPTIL JUNGLE T8 tubes. It is vital you mount the JBL SOLAR REPTIL SUN T8 inside the terrarium so the glass panes don't reduce the light between the tubes and the animals. This is so the animals can effectively utilise the ultraviolet light. If necessary mount a wire screen to prevent the animals from coming into contact with the tube.

Metal halide lamps which also produce ultraviolet radiation and heat in addition to visible light, are even better than fluorescent lamps. JBL ReptilDesert L-U-W Light alu provides terrarium keepers with the best technology on the market for desert terrarium lighting and is also species appropriate for desert creatures.

Incidentally, invertebrates such as spiders and scorpions do not require any ultraviolet light. Indeed it can even be harmful to them. Here, JBL ReptilDesert Daylight or JBL ReptilJungle Daylight (energy-saving lamps without ultra-violet radiation) or the JBL Reptil LED Daylight 12W are the best option.

Animals species for desert terrariums with high UV radiation

Here is some information about possible types of lighting for the following species (examples). You can always choose whether to supply heat though the lighting or separately with a heating mat.


Rock lizards


Collared lizards


Spiny-tailed Iguanas


Spiny-tailed lizards


Rainbow lizards


Monitor lizards


Tortoises


Yellow-headed agamas


Frilled-neck lizards


Leopard tortoises


Bearded dragons


Girdled lizards


Chalcides

Lighting with no heat emission

If you have a shallow terrarium, with animals in need of UV, and the heat is not being supplied by the lighting, you could consider the following lighting types:

Lighting with heat emission

If your animals need heat as well as light, the following types of lamps are ideal:

JBL SOLAR REPTIL SUN T8

Special T8 terrarium fluorescent tube for desert animals

JBL ReptilDesert UV Light

Energy-saving lamp for desert terrariums

JBL ReptilDesert L-U-W Light alu

Solar light (spot light) for desert terrariums

JBL UV-Spot plus

Extra strong UV spot lamp with daylight spectrum

Light for rainforest terrariums

Since there are many different habitats in the rainforest, this topic is complex. Animals which live in the treetops or on the river bank of the rainforest (e.g. turtles) receive as much UV-A and UV-B on a sunny day as a desert animal. This is because a lot of rainforests are situated on the same latitude as the deserts. Only the rainy seasons make a big difference in UV irradiation, when viewed over the whole year. If you'd like to reproduce dry and rainy seasons in your terrarium, you'll need to take a look at the climate tables of the respective region and adjust your lighting accordingly. Providing an average UV amount the whole year round creates an unnatural condition.

The quality of the visible light spectrum and its intensity are of secondary importance to the animals. However, they are elemental for well-kept plants! So make sure you have a sun-like light spectrum for the plant care and for the right amount of UV for the care of your animals

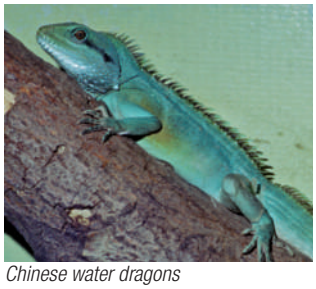
In the rainforest itself, some species live in biotopes which receive little or no UV radiation. These include for instance poison dart frogs, spiders and scorpions. Most lizards and snakes receive UV-radiation in varying extents. Please be sure to find out the exact UV requirements of your terrarium animals. With the help of the lighting, you then can generate suitable light, UV and heat.

Light with UV for animals in tropical forests

Many forest animals receive a relatively large amount of UV light due to the way they live e.g. in the treetops or on the river bank.
Animals from the rainforest, dry forest & swamp areas


Anole species


Basilisks


Chinese water dragons


Green iguanas


Dwarf day geckos


Day geckos


Red-footed tortoises


Hinged tortoises


Cooter turtles


Terrapins


Gold tegus


Yemen chameleons

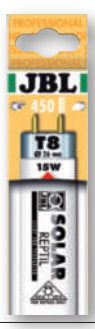

Flap-necked chameleons

Lighting with no heat emission

There are animal species which may need light and possibly also UV, but prefer a cool terrarium. The amphibious axolotls are an example of this. If the animals need sunny spots, but not a consistently warm terrarium, the following lighting, supplemented by basking spot lights, is the right choice.

JBL SOLAR REPTIL JUNGLE T8

T8 terrarium fluorescent tube for rainforest animals



JBL ReptilJungle UV Light

Energy-saving lamp for rainforest terrariums

Lighting with heat emission

If you not only want to illuminate your terrarium brightly, but also to provide heat, the following lamp types are ideal:

JBL ReptilJungle L-U-W Light alu

Wide-beam spotlight for rainforest terrariums

JBL UV-Spot plus

Extra strong UV spot lamp with daylight spectrum

Light without UV for animals in tropical forests

For (mainly) bottom-dwellers in the rainforests
Some tropical forest animals live on the ground or in the shade and do not need UV light. This is often harmful.
The following animal species don't need any UV radiation.


Axolotls (cool waters)


Newts (cool waters)


Red-eyed tree frogs


Royal pythons


Corn snakes


Poison dart frogs


Dyeing dart frogs


Tarantulas


Scorpions


Green tree frogs


Tree pythons


Leaf insects


Praying mantises

When choosing your light source, also think about the heat development. Most lamps produce heat in addition to visible radiation and UV generation. This may be desirable if you want to achieve a temperature reduction at night. However, if the temperature in the animals' habitat does not drop at night or does not drop so much, heat must be generated even in the dark phase. For this purpose, heating mats (JBL TerraTemp heatmat) or ceramic heat lamps (JBL ReptilHeat) are suitable.

Lighting with no heat emission

Lighting with heat emission

JBL SOLAR Natur/Tropic
T8 fluorescent tubes

JBL LED SOLAR NATUR
High-performance LED light

JBL Reptil LED Daylight
LED daylight lamp with full spectrum for terrariums

JBL ReptilJungle Daylight
Energy-saving lamp for rainforest terrariums

JBL ReptilDay Halogen
Halogen spotlight with daylight full spectrum

Light for animals that are active at dusk and at night

Some of these animals, like tree pythons, become active as soon as the daytime UV radiation decreases at dusk. In this case use light containing UV during the day. The animals will then receive the amount of UV during the transitional period between day and night required for their well-being.

Twilight active and night active animal species.

Tree frogs

Red-eyed treefrogs

Horned frogs

Mangrove cat snakes

King snakes

Leopard geckos

Bibron's geckos

Green tree pythons

Tokay geckos

House geckos

Boa constrictors

Scolopendra

Thick tail scorpions

Weak lighting is ideal for twilight active and nocturnal animals. This allows you to observe the animals once the room lighting is switched off and the natural light is dimming. A distinction is then made between lamps with or without heat emission:

Dusk and night time lighting with no heat emission

JBL ReptilJungle UV Light
Energy-saving lamp for rainforest terrariums

JBL Reptil LED Daylight
LED daylight lamp with full spectrum for terrariums

Dusk lighting with heat emission

JBL ReptilDay Halogen
Halogen spotlight with daylight full spectrum

Accessories for terrarium lighting

Terrarium lamps often have properties that make extra accessories necessary. These can be heat protection screens or special sockets, which are safety-relevant for the high temperatures of ceramic and other spotlights in the terrarium. Mount the thermometer and hygrometer at the lowest and highest point in the terrarium to monitor the temperature zones!

JBL TempSet angle

Installation kit for lamps in terrariums

JBL TempSet angle+connect

Installation kit for lamps in terrariums

JBL TempSet Unit L-U-W

Installation kit for metal-halide lamps, e.g. LUW and HQI

JBL TempSet Heat

Installation kit with ceramic bulb holder for heat radiator

JBL TempReflect light

Reflector screen for energy-saving lamps

JBL TempProtect II light

Thermal burn protection for reptiles when using JBL TempSet items

JBL TerraControl

Thermometer and hygrometer incl. suction cup

General tips for terrarium lighting

Be sure to pay attention to the minimum or maximum distance between animal and lamp. Climbing features are a great way to keep these distances. Protection screens (JBL TempProtect II light) prevent animals from getting burned from jumping or climbing on the lamps.

You can significantly increase the service life of the lamps by not spraying the lamps when spraying the terrarium.

Using lamp holders with hinges to achieve your desired lamp angle is absolutely no problem, but please never install LUW spotlights (HQI) at an angle. These need to be suspended vertically and can only be operated with special ballasts.

Comparison of all terrarium lamp types

The following table gives you an outline telling you which lamp types have which properties. The more plus signs a lamp type has, the stronger the corresponding property. A minus sign means that the property is NOT present.

JBL product	Lamp type	Light	UV-A	UV-B	Heat
JBL ReptilJungle Daylight 24W	Energy-saving lamp	++	–	–	–
JBL ReptilJungle UV Light 15W	Energy-saving lamp	+	+	+	–
JBL ReptilJungle UV Light 23W	Energy-saving lamp	+	++	++	–
JBL ReptilDesert Daylight 24W	Energy-saving lamp	++	–	–	–
JBL ReptilDesert UV Light 15W	Energy-saving lamp	+	++	++	–
JBL ReptilDesert UV Light 23W	Energy-saving lamp	+	++	++	–
JBL UV-Spot plus	Daylight UV spot lamp	+	++	++	++
JBL ReptilJungle L-U-W Light alu	Metal halide lamp	++	++	++	++
JBL ReptilDesert L-U-W Light alu	Metal halide lamp	++	++	++	++
JBL ReptilDay Halogen	Halogen spotlight	++	–	–	++
JBL SOLAR REPTIL SUN T8	Fluorescent tube	+	++	++	–
JBL SOLAR REPTIL JUNGLE T8	Fluorescent tube	+	+	+	–
JBL SOLAR REPTIL SUN ULTRA T5	Fluorescent tube	++	++	++	-
JBL Reptil LED Daylight 12W	LED daylight lamp	+++	-	-	-
JBL LED SOLAR NATUR	LED light	+++	-	-	-

Heat and temperature in terrariums

Since no terrarium animal can produce its own heat (cold-blooded animals), they depend on the ambient temperature. Many lizards and snakes actively seek out places where they can warm themselves in the temperature of the ground or the sun. Only with the right body temperature are they capable of reaching their peak performance (hunting) and keeping their metabolism working normally.

Because the sun generates heat in the wild, light is associated with heat. That's why a lot of terrarium animals seek out places under bright spotlights. They would not recognize a dark (infrared) ceramic heat lamp without visible light! The Ceramic heat lamp is an ideal way to supply heat to the terrarium during the dark phase. Ceramic heat lamps and heating mats are the only way to heat without light.

When the animals have warmed up, they start looking for cooler places again. That's why terrariums must never be heated evenly, but need different temperature zones. A floor heating like JBL TerraTemp heatmat should for example only be attached under one area of the terrarium.

Heat requirement of terrarium animals

In the following section you will find information about the heat requirements of animals from various habitats

Heat for tropical forest animals

Tropical forest dwellers usually need high daytime and slightly lower nighttime temperatures (e.g. Amazonia 32 °C day/23 °C night – should not fall below this limit!). You can lower temperatures by switching off the warm daytime lighting at night.

Heat for animals that are active at dusk and at night

Nocturnal tropical forest animals require higher temperatures between 23 and 30 °C during the night, whereas night-active desert animals prefer lower temperatures from 15-22 °C.

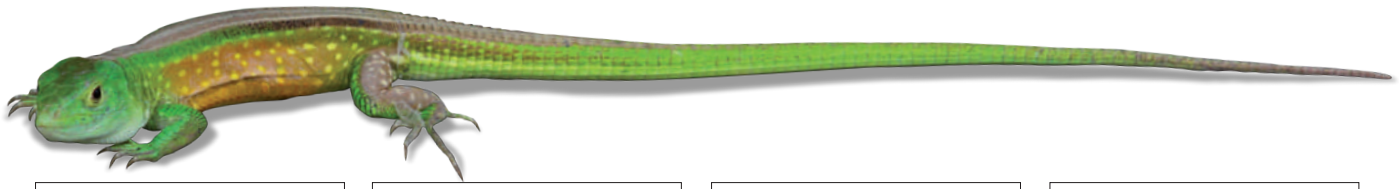
Heat for desert animals

Desert animals are used to high daytime and often to low nighttime temperatures. If it gets too warm for them during the day, they need to be able to retire to cooler places in the terrarium.

It is also important that different daytime and nighttime temperatures are maintained, recreating the animals' habitat conditions. Especially in deserts, it can be very cold at night and the animals retire to caves where heat is stored by the surrounding sand or rock. But even in rainforests the heat is not always on the same level. In the Amazonian lowlands, for example, the night temperature can drop to 22 ° C in the early morning hours!

Heating in a terrarium should be dimensioned so that the animals will not be "roasted" in the event that the control technology fails. In other words, a small terrarium should not be equipped with an oversized 100 watt heating cable with a controller. Instead it should have a small floor heating of 8 to 15 W (JBL TerraTemp heatmat). The heating effect of the lighting also needs to be taken into account. As a result, when the lighting is turned off, the nighttime drop in temperature occurs simultaneously.

The heat dissipation of a terrarium can be reduced – and savings in energy costs achieved as a result – by insulating the side panes with insulating material on the outside to prevent heat loss. Foam pads such as the JBL AquaPad under the bottom panel prevent heat emission but also prevent the bottom panel from bursting in case the supporting surface is uneven and there is no heating mat attached outside on the bottom. When placing a heat mat there, though, it is imperative to follow the relevant instructions in order to ensure a sufficient rear ventilation of the heating mat. The JBL floor heating mats (JBL TerraTemp heatmat) come with "feet" as spacers. If the lighting is not sufficient for heating and the installation of a heating mat under the terrarium is not possible, use ceramic heat emitters, such as JBL ReptilHeat). These ceramic heaters heat up (not visible from the outside) and release the heat into the terrarium air. To prevent animals from getting burned, they should always be covert with a heat protection basket (JBL TempSet Heat).



JBL ReptilHeat

Ceramic heat lamp

JBL TempSet Heat

Installation kit with ceramic bulb holder for heat radiator

JBL TerraTemp heatmat

Heating mat for terrariums

JBL AquaPad

Special underlay for aquariums and terrariums

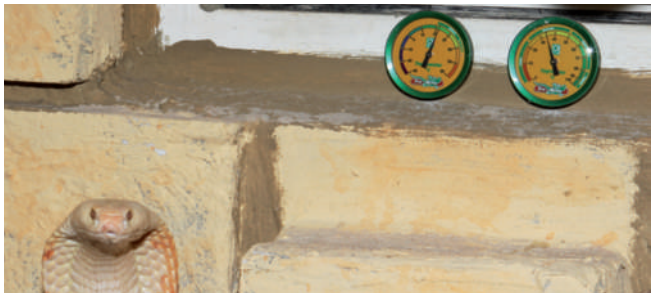
Humidity

Everyone knows that the humidity in the jungle is higher than in the desert. But how much exactly? How much does it fluctuate from morning to evening? How can you regulate it? These questions are important and need to be clarified for each species.

Humidity in rainforest terrariums

With rainforest animals it's no use simply building an irrigation system in your terrarium to permanently achieve 100% humidity! Our measurements during the JBL Amazon Expedition showed that during the day, the humidity dropped to 58% with increasing temperature (12:00 noon) and increased to a maximum of 92% early in the morning (2:00 - 6:00). Our measurements in Venezuela at the Orinoco showed the same trend, albeit with slightly different values: highest humidity of 96% at 6:30 in the morning and lowest humidity of 65% at 13:30 in the afternoon.

In the rainforest terrarium, water sections or a waterfall increase the humidity. The monitoring of the relative humidity and air temperature can, for example, be carried out with the JBL TerraControl.



If the humidity you achieve is not sufficient, an additional spraying with water in the evening or a sprinkler system is advisable.

Humidity in desert terrariums

As in the rainforest, the humidity decreases during the day as the air temperature increases and increases at night with decreasing air temperatures, whether in the Australian outback or in African deserts at about 20% at noon and 80% at night.

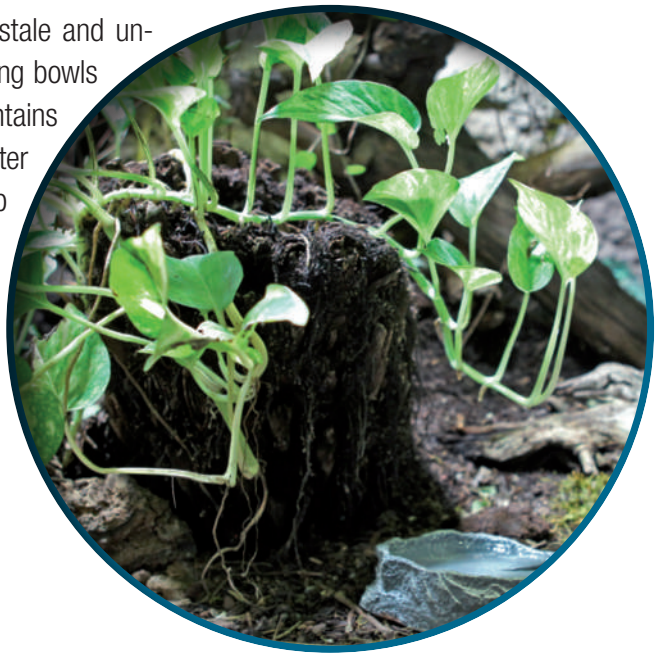
Remarkably, there are huge differences within the same region, e.g. in Tanzania/near Mount Meru: Only a few miles apart, we simultaneously found 42 °C with 16 % relative humidity and 34 °C with 44 % humidity at the same time. When aiming to keep the conditions of your terrarium animals close to nature not only the region (e.g. Arusha) but also the microhabitat (steppe, savanna, bush, height above sea level, rainforest, etc.) is important. Equally noteworthy are the differences between day and night: from a day's maximum value of 34 °C with 44 % relative humidity, the values drop at night to 18 °C at 83 % relative humidity. These conditions should also be reproduced for a species-appropriate animal keeping.

Since the humidity is so important for a lot of animal species, e.g. when shedding skin, it also needs to be properly adjusted in the terrarium. And because many desert terrariums contain at least two climatic zones (sun area and cooling area), separate measurements are also needed from both areas. During the day the humidity values should be between 20 and 40%. At night, it might be between 50 and 70%. It is possible to adjust the moisture slightly with the help of a water bowl. The warmer the bowl, the more water evaporates and increases the humidity. In addition, some fine, light spraying may be helpful. Never aim directly at the animals when spraying!

Adding plants to your desert terrarium will increase the humidity as well. The soil introduced stores moisture and the plants also transpire and release water into the air via their stomata.

Water care and filtration

Whether large or small amounts of water - they become stale and unhealthy with an increasing germ count. Consequently drinking bowls need fresh water on a daily basis. As tap water often contains substances, such as heavy metals or chlorine, a special water conditioner, like JBL Biotopol T, will help you to make your tap water drinkable for your terrarium animals.



Unfortunately crawling food animals often drown in the drinking bowl, leading to a high organic load in the water. JBL has therefore integrated a "rescue ladder" for feeder animals in the JBL ReptilBar GREY drinking bowls.

The situation is very different for larger bathing bowls or water sections, as needed for turtles or large lizards. Here a separate water filtration is not only useful, but absolutely necessary. You have the choice between internal and external filters. With internal filters the entire filter (e.g. JBL CristalProfi i100 greenline) is situated inside the water container - only the power cable needs to be fed out of the terrarium. For external filters, (e.g. JBL CristalProfi e402 greenline) the filter container is outside the terrarium. However, a water inlet and an outlet hose need to be fed from the filter to the terrarium. The advantage is the better accessibility of the filter for cleaning. The disadvantages are the water-carrying hoses in the terrarium.

Specifying exact cleaning intervals is difficult because a lot of factors, such as filter size (not pump performance!), dirt accumulation etc., can influence the need to clean greatly. A rough guide is 2-4x weekly in internal filters and 8x in external filters. Since the filter materials inside break down pollutants biologically, an inoculation with a bacterial starter (JBL FilterStart) is advised. If it comes to unpleasant odours in the water sections of the terrarium, a special bacterial preparation (JBL EasyTurtle) can help.

JBL CristalProfi i100 greenline

Energy-efficient internal filter for aquariums with 90 -160 l

JBL CristalProfi e402 greenline

External filter for aquariums from 40 - 120 litres

JBL FilterStart

Bacteria for the activation of new and cleaned filters

JBL EasyTurtle

Special granulate to remove odours

Biotope data of the JBL research expeditions

JBL undertakes yearly expeditions to the native habitats of ornamental fish and terrarium animals and collects data of habitats and makes observations about their way of life based on first-hand experience.

Since 2001 JBL has been undertaking its own research expeditions to the original homes of our terrarium dwellers. With the help of measuring instruments all biotope data is logged and measurement errors are eliminated by the multiple measurements of the expedition members.

Don't forget that measuring results made with different manufacturers' devices are not easily comparable! And devices with sensors are a particular problem: a UV-B sensor made by Gröbel (Radiometer RM 12) indicates another value than – let's say - the popular solar meter from USA's Solartech Inc. during the measurement. The reason is NOT the inaccuracies of the measurement or the bad quality of the devices but the "response characteristic" of the sensors:
NO UV sensors start abruptly at e.g. 315 nm; they slowly increase at 280 nm to a maximum at 300 nm and then slowly drop to 315 nm again. Their response characteristic corresponds to a wave. Other devices also show a wave structure but a more steeply increasing or decreasing one. That's how it can come to MASSIVE differences in the results.

We have made a key observation after twelve expeditions around the world: the data varies from year to year, but more from season to season. In the rainy season biotope surveys naturally result in different values than during the dry season. But microhabitats also play an important role: a clearing in the rainforest can drastically change the climatic values compared to a shady location under a dense tree population, although they are only 100 m apart.

UV measurements

South America, Rio Negro near Barcelos, April 2009

Hour	Weather	UV-A mW/cm²	UV-B mW/cm²
7:00	cloudy	0,2	0,0
9:00	partially cloudy	1,3	0,04
10:00	partially cloudy	1,9	0,06
12:00	cloudy	2,2	0,09
16:00	cloudy	0,3	0,0

Vietnam, Nha Trang, May 2013

Hour	Weather	UV-A mW/cm²	UV-B mW/cm²
15:00	partially cloudy	0,5	1,51

For comparison Germany, Neuhofen June 2013

Hour	Weather	UV-A mW/cm²	UV-B mW/cm²
15:00	partially cloudy		0,82

Australia, Atherton Tablelands, October 2015

Hour	Weather	UV-A mW/cm²	UV-B mW/cm²
16:00	cloudless	0,61	0,12

Australia, Outback near Kata Tjuta, October 2015

Hour	Weather	UV-A mW/cm²	UV-B mW/cm²
8:30	cloudless	1,9	0,46
9:30	cloudless	2,05	0,54
11:00	cloudless	2,26	0,68
12:00	cloudless	3,36*	1,28*

*(our all-time highest measurement)

JBL Expeditions

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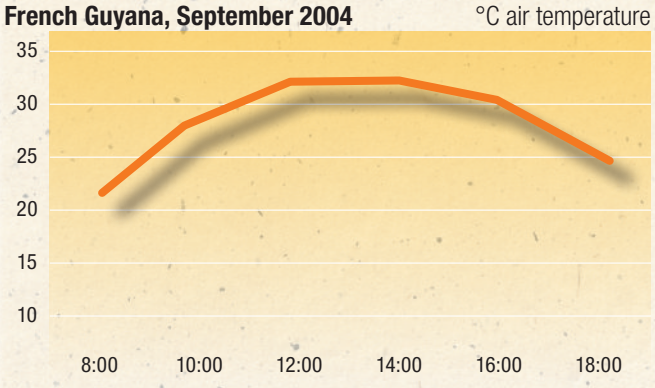
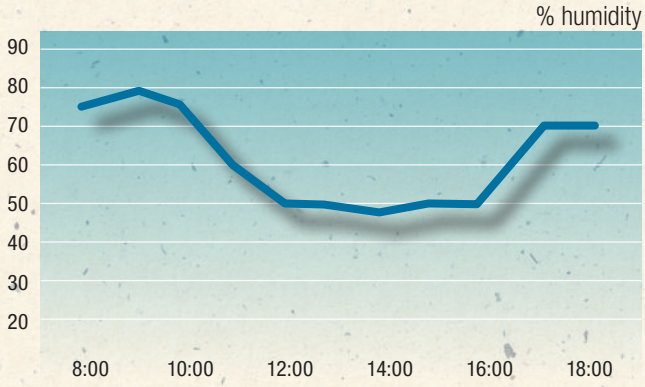
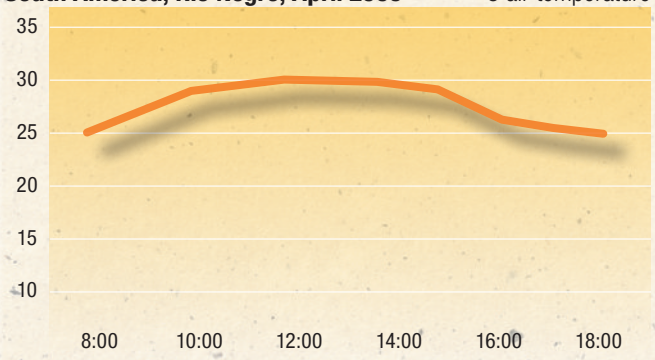
Air temperatures/relative humidity (in the shade):

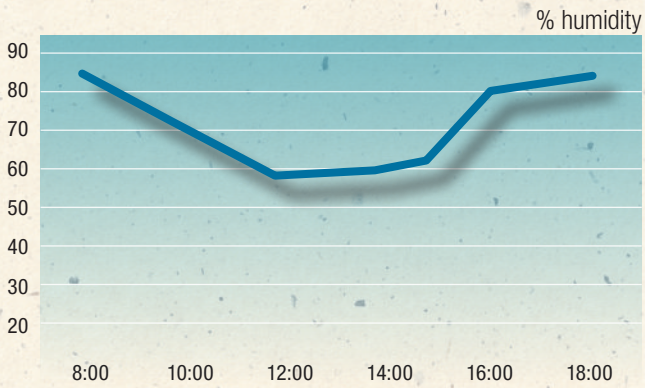
French Guyana, September 2004



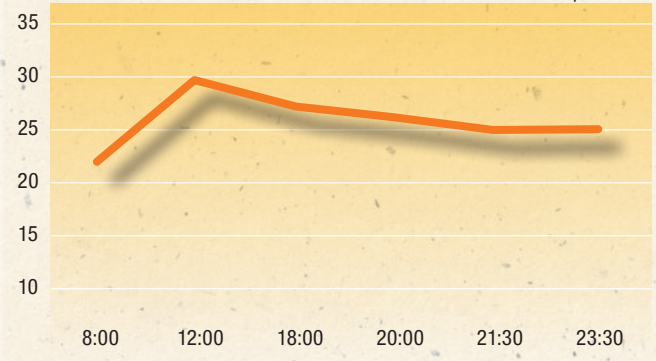


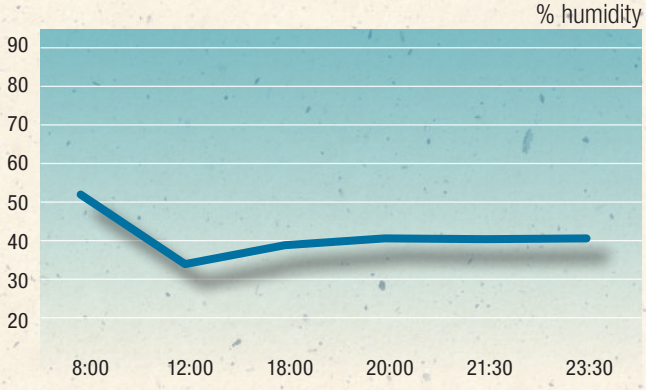
South America, Rio Negro, April 2009

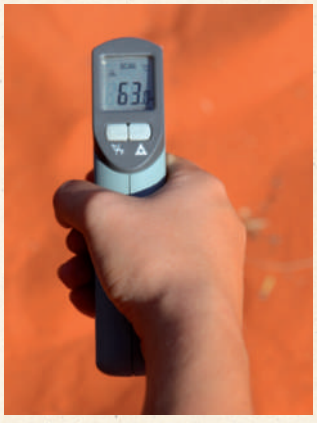




Malawi, September 2006







The temperature measurements on the different surfaces the reptiles sit on, are also interesting. A laser temperature-measuring device is easy to use and provides accurate measurements within 1-2 °C.

Australia, Outback, cloudless, 15:00 h:
light sand 58 °C, stone 56.6 °C, wood 66.4 °C

Australia, Red Center Highway near Uluru, 15:00 h:
red sand 63.6 °C, stone 58.2 °C, wood 59.4 °C
(our all-time highest measurement)

Vietnam, Nha Trang, rainforest, 14:00 h, cloudy:
stone 34.4-36.2 °C, wood 34.4 °C.

Africa, Tanzania near Arusha, February 2010, partially cloudy, 14:00 h:
wood shade 21.8 °C, sand shade 28.6 °C, stone 34 °C,
wood 30 °C, soil 35.6 °C

Setup

Inspirations for setting up your terrarium. Substrates, equipment parts and technical support

Ideas for terrarium designs

If you've never been to a desert you'll probably only know them from films and documentaries. But they rarely focus on what we are interested in: What does the soil look like? How are the stones layered? What do the caves where the animals take refuge look like?

Engaging with the habitat of the animals you plan to keep is really one of the most rewarding parts of terraristics. It may even incite you to take a trip to the home territories of the animals. However this can prove tricky. A trip to the home territories of the popular leopard gecko would land you pretty much in the centre of all the world's crises spots: Afghanistan, Pakistan, Syria, etc. Maybe the internet search will suffice after all.

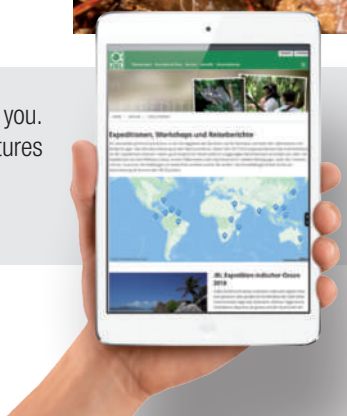
Once you have selected a species and know that you are able to set up a terrarium with a suitable size, the fascinating research can begin:

- **Where exactly do the animals live?**
- **Are they active in the day or during the night?**
- **What are the local soil characteristics?**
- **Which plants can be found in the habitat?**
- **What are the abiotic factors, such as humidity, temperature and light?**
- **What type of rock is there: granite, slate or red sandstone?**

Habitats in the biotope

The term biotope refers to the habitat, comparable to a house. The habitat itself is like one room, say a kitchen. The indication "rainforests of Costa Rica" about the habitat is thus not very helpful. Does the frog hop on the ground or does it climb trees? Or both? The more information you can get, the sooner you'll have a picture in your mind's eye about the decoration in the terrarium. If you then enter "Costa Rica rainforest" on google images, you will receive beautiful pictures of nature (and a lot of strangers grinning into the camera). These will help you to create a breath of Costa Rica in your terrarium. And a holiday in Costa Rica is healthier than one near the Afghan-Pakistani border, where no one would believe, that you were there for the leopard geckos.

A look at the picture galleries of JBL Expeditions can also help you. Since our focus is on the animals and their habitats, many pictures are more helpful than those of "normal" tourists.



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Setup and decoration

Now let's put your ideas about a habitat into practice. The process will comprise five steps: the technical equipment, the side walls, the constructions, the substrate and the plants. And these need to be dealt with in exactly this order, since the technical items determine where cables or hoses need to be laid. Then follows the panelling of the side walls, as they strongly characterize the overall impression of your terrarium. You have an incredible number of options for the design of the side walls: cork panels, stones, stone replicas, styrofoam, styrodur, tree fern (Xaxim) - coconut fibre plates, or halved bamboo canes. Always use a non-toxic glue like JBL ProHaru Universal 80ml or JBL AquaSil transparent and avoid spaces that are inaccessible.

Further stone or wood constructions need to be stacked on each other so securely that they cannot slip. Turtles or lizards can be very forceful! It is always safer to glue stone groups together so that you have a higher, immovable weight per group. However, if necessary, you should be able to lift the stone groups from each other to reach a hiding animal etc. Here again you should use a suitable adhesive, such as JBL ProHaru Universal 80ml or JBL AquaSil black to let it dry for 24 hours.

Positioning of the lighting

Timely planning saves trouble at a later date.
The position of the spotlight also impacts the setup. Once you have attached the lighting and e.g. a JBL UV-Spot plus you can adjust the decoration and build climbing opportunities (as an example), so that your animals can retain their ideal distance to the UV spotlight (JBL UV-Spot plus) or the LUW spotlight (JBL ReptilDesert L-U-W Light alu).

Water section in the terrarium

If a water basin is to be installed it's best to do it before inserting the construction of stones or wood. For large basins, a drain tap with a hole at the bottom is a great help when it comes to maintenance. Ask a glazier to drill a hole (this can even be done later if necessary). This way you can drain and replenish the water through the drain tap without reaching into the terrarium. Likewise, a filter connection via TWO holes is possible.

The substrate

Last of all come the substrate and the planting. If you want to install caves which are easy to lift and clean, you can always use prefabricated plastic ones (JBL ReptilCava SAND). These are available in various sizes and colours.

Substrates for terrariums

The ground on which our terrarium animals move can vary hugely. Most animals have adapted perfectly to their natural habitat. That's why the choice of the substrate is really crucial for the well-being of the animals. A "genuine" natural substrate is not always suitable for a terrarium. And anyway we don't want to empty the rain-forest. So we often take a material that comes very close to the original, but is easily available and doesn't rot.

In addition to the lighting, the substrate is one of the most important factors when keeping terrarium animals in a species appropriate manner. Mixtures of two different substrates are often ideal. Always select your substrate carefully.

Terrariums in which the soil is to be kept moist need a lowermost drainage layer. This allows excess water to run off downwards and prevents waterlogging. For the drainage layer gravel, expanded clay or JBL Manado are suitable.

Substrate for terrariums

Lizards

Type	Species	Substrate
	Anolis	① ③ ④ ⑨A-B
	Bearded dragon	⑥ ⑦ ⑧
	Chameleon	① ③ ④ ⑨A-B
	Spiny-tailed lizard	⑥ ⑦ ⑧
	Large Tegu	②
	Day gecko	① ③ ④ ⑨A-B
	Horned lizard	⑥ ⑦ ⑧
	Leopard gecko	
	Mountain horned dragon	① ③ ④ ⑨A-B
	Rainbow agama	⑥ ⑦ ⑧
	Spiny-tailed monitor	
	Savannah monitor	
	Asian Water Monitor	② ⑤
	Big Monitor lizard species	
	Water dragon	① ③ ④ ⑨A-C

Iguanas

Type	Species	Substrate
	Green iguana	① ② ③ ④ ⑤ ⑨A-C
	Hispaniolan masked curly-tailed lizard	⑥ ⑦ ⑧
	Spiny lizard	
	Desert iguana	

Turtles and tortoises

Type	Species	Substrate
	Great tortoise species	⑨C
	Great tortoise species	① ③ ④ ⑨A-B
	Turtles	① ⑨A
	Leopard tortoise	⑥ ⑦ ⑧

① JBL TerraBasis

For humid and semi-humid terrariums: specialty soil from selected natural products for rainforest terrariums.

② JBL TerraCoco

For all types of terrariums: natural substrate made of coconut chippings.

⑤ JBL TerraWood

For dry and semi-dry terrariums: natural substrate made from beech chippings.

⑥ JBL TerraSand natural red

For desert terrariums: natural substrate made of fine red sand, grain size: 0.1 – 0.2 mm

Rainforest
The habitats of the rainforest inhabitants are characterised by high humidity and different temperature zones.

Desert
The habitats of desert dwellers are characterised by strong temperature fluctuations.

Amphibians

Type	Species	Substrate
	Toads	①③④ ⑨A-B
	Tree frogs	
	Poison dart frogs	
	Fire belly toads	

Spiders and scorpions

Type	Species	Substrate
	Scorpions from rainforests	①③④ ⑨A-B
	Tarantulas	
	Desert scorpions	⑥⑦⑧

Snakes

Type	Species	Substrate
	Boa species	⑨A
	Black rat snake	①③④ ⑨A
	Big boas	②③④
	Young Indian python	①③④ ⑨A-B
	King snake	
	Royal python	
	Corn snake	
	Python	⑨C
	Sand boa	⑥⑦⑧
	Garter snake	①③④ ⑨A-B

3 JBL TerraCoco Compact

For all types of terrariums: natural substrate made of coconut chippings.

4 JBL TerraCoco Humus

For all types of terrariums: natural substrate made of turf-like coconut humus.

7 JBL TerraSand natural yellow

For desert terrariums: natural substrate made of fine yellow sand, grain size: 0.7 – 1.25 mm

8 JBL TerraSand natural white

For desert terrariums: natural substrate made of fine white sand, grain size: 0.2 – 0.5 mm.

9 JBL TerraBark

For forest and rainforest terrariums: substrate made of pine bark.
A: 2-10 mm
B: 10-20 mm
C: 20-30 mm

Installing the technical items

Firstly think about the technical products, you want to install in the terrarium BEFORE you start the setup! If you have glued in the background features and later find out that a cable should have been installed, you'll have to tear them out again.
The design needs to suit the technology, so during the planning stage be thinking about where (for instance) a stone construction can reach high enough for the animals to sunbathe under the lamp you have mounted there.

Installing lamps

Installing the lighting
Always place lamps INSIDE the terrarium, as glass panels absorb 50% of the UV radiation and also reduce the heat development. Many terrariums have perforated metal plates at the top for ventilation. In these perforated plates you can easily fit the recesses for lamps with a drill and jigsaw.

Please remember when installing lamp sockets that LUW lamps (metal halide lamps) can only be hung vertically! Sockets with joint (JBL TempSet angle) may be used for all lamp types except LUW. For animals not in need of UV light, you do not have to equip the entire terrarium with UV-emitting lamps! Depending on the size of the terrarium, one or two UV-generating lamps are sufficient if the animals can access them. The rest of the terrarium can be illuminated with non UV producing lamps such as JBL LED SOLAR Natur, JBL SOLAR Reptil fluorescent tubes, JBL energy-saving lamps, JBL LED Reptil Daylight etc.

Integration of heat technology

Heat technology: ceramic heat lamps also called dark spot heat emitters like JBL ReptilHeat need, because of the heat development, special sockets, such as JBL TempSet Heat, and should never be screwed into normal sockets.

For all other lamp types, a normal heat protection screen, such as JBL TempProtect II light, is more than recommended to protect the animals. Lizards and snakes perceive the lamp as a source of light and heat and would lie on it if they could. They would suffer burn injuries even before they felt the pain. JBL heat protection screens are available in two sizes. You'll always find the right heat protection screen for your lamp, no matter whether it's an LUW, halogen, UV spot or a neodymium lamp.

Lamps that get only slightly warm, e.g. energy saving lamps JBL ReptilDesert Daylight or fluorescent lamps like JBL SOLAR REPTIL JUNGLE T8 / JBL SOLAR REPTIL SUN T8 do not need any heat protection.
Remember to keep the correct distance to your animals when installing the lamp and the construction with wood or stones underneath! This should not be too large or too small.

Along with heat radiators, heating mats are the second way to generate heat without visible light. JBL heating mats are always attached to the terrarium from the outside. That way they cannot be bitten into or moisture damaged. To avoid trapped heat, you need to install spacers (supplied by JBL). Please never underlay the whole terrarium with a heating mat. The animals regulate their body temperature by seeking out warmer and cooler areas in the terrarium.

Waterfall and watercourse

In rain forest terrariums, small water pumps are sometimes installed to operate a mini waterfall. The cable of the pump has to be laid so that it is neither visible nor running behind a glued decoration, because at some time the pump may need to be replaced. Both cable and pump therefore need to be completely accessible.

Water sections need to be integrated into the layout from the start, since they determine all other elements in the terrarium. A lamp, for example, is useless above the water. Turtles bask on land! If the mistake has already been made, try adding a tree trunk to the water.

Once the water section is a certain size, a drainage (and possibly also a water inlet) is useful. Your glazier can cut holes into the bottom pane of your terrarium and the water tank. There you can install fittings with stopcocks, which are then connected with a water hose or an aquarium filter. Also remember to add cutouts to the cabinet underneath.

Monitoring the temperature & humidity

Hygrometer and thermometer

Along with heat radiators, heating mats are the second way to generate heat without visible light. JBL heating mats are always attached to the terrarium from the outside. That way they cannot be bitten into or moisture damaged. To avoid trapped heat, you need to install spacers (supplied by JBL). Please never underlay the whole terrarium with a heating mat. The animals regulate their body temperature by seeking out warmer and cooler areas in the terrarium.

Terrarium dwellers

Find the terrarium inhabitants best suited to you and discover everything you need to know about their needs here.

Feeding types

As elsewhere in the animal kingdom, there are three predominant feeding types among terrarium animals: meat-eating animals (carnivores), insect eating animals (insectivores), plant eaters (herbivores) and animals which eat both meat and plants (omnivores). There are all the variations in between too. It is important to understand that a feeding type, such as carnivore, does not mean that this animal only eats meat. It may well ingest vegetable food as a supplement. In addition, carnivores also eat plant food present in the stomachs of their prey. Take the snake as an example.

Herbivorous animals often eat animals on the plants they are eating and thus also get some animal protein. They need to be on a vegetarian diet because they cannot digest carnal food. Tortoises are typical herbivorous terrarium animals.

Omnivores are able to consume and digest both herbal and animal components. Omnivore means that the animals can not only eat anything, but they HAVE TO eat everything! A one-sided carnal or one-sided herbal diet would lead to disease or even to the death of the animal.

It does not matter if you keep carnivorous, herbivorous or omnivorous animals: variety in the diet is the main thing! Please remember that your animals often have an incredible variety of food available to them in the wild. It's therefore important to offer a herbivore a wide range of plant food, the same goes for carnal food for the carnivore. Feeding only dandelions or just dead mice is convenient, but definitely the wrong way!

Animal species

Insects, spiders, scorpions, amphibians, lizards, snakes and turtles are the animal groups most commonly kept in terrariums. We'll give you tips on how to keep these animals, and to make the information easier to find, subdivide them not in rainforest and desert animals, but in the groups mentioned above. Although this is not systematically correct biologically, it will make your job easier.

Insects and myriapods

Although the insect group is huge, only a few species are regularly found in the terrarium. Even amongst the myriapods (millipedes, centipedes, and others) there are few species that are regularly kept. Both groups of animals are suitable for beginners. Only scolopendra are better left to the expert because of their toxicity!

Myriapods / millipedes (in the order of Julidae)

Millipedes live in rainforests on damp soil.

Millipedes live on damp soil in rainforests. There is also a European species (black millipede/Tachypodoiulus niger), which only grows 4 cm long. Many tropical species reach body lengths of about 15 cm. Terrariums should have a floor area of at least 40x40 cm. As substrate a lowermost drainage layer of JBL Manado is suitable, covered with JBL TerraBasis or (moistened) JBL TerraBark. It is essential to create hiding places with wood, leaves and cork. Julidae are peaceful creatures who only release their poisonous secretion in stress situations. Humans can react very differently to this poisonous secretion, as is the case with allergies. You can keep a small group of 3-4 animals in a 40 x 40 cm terrarium. Don't light too brightly, use JBL ReptilJungle Daylight. Nutrition with fruits, vegetables, leaves, lichens and mushrooms. Avoid cabbage, lettuce and citrus fruits. A small bowl of water (JBL ReptilBar SAND) is useful. Temperature 20-30 ° C at a humidity of 70-90%. A heating mat like the JBL TerraTemp heatmat may be placed under the entire surface of the terrarium. The animals also need water but need to be protected from drowning. Here a water gel (JBL TerraGel) in a small water bowl (JBL ReptilBar GREY) is most suitable.

Scolopendra

Scolopendra, centipedes of the family Scolopendridae, are aggressive predators with a length up to 25 cm.hey are extremely toxic and you need to be very careful when handling the animals.

They live in tropical rainforests, need temperatures between 25-30 ° C and a humidity of 75-95% during the day. At night, the temperature may be reduced to 22-25 ° C. Keep individually! The terrarium should have a floor area of at least 40 x 40 cm. As substrate a lowermost drainage layer of JBL Manado, covered with JBL TerraBasis or (moistened) JBL TerraBark is suitable. It is essential to create hiding places with wood, leaves and cork. A small bowl of water (JBL ReptilBar GREY) is useful. Diet: Insects of an appropriate size. Lighting not too bright with JBL ReptilJungle Daylight. The animals also need water but need to be protected from drowning. Here a water gel (JBL TerraGel) in a small bowl of water (JBL ReptilBar GREY) is best suited.

Praying mantises

Praying mantises are fascinating creatures with an incredible variety of forms and species (2300 species).

They live predatorily in rainforests and prey on insects by ambushing them with a lightning-fast movement of their raptorial legs. One species lives in the Mediterranean region. Males and juveniles can be maintained in groups, adult females only individually in terrariums from 30x30 cm floor area. During the day the air temperature should be between 25 and 30, at night around 22 ° C. Keep the humidity at 70-90% by spraying (also as drinking water). Feed exclusively with live insects. As substrate a lowermost drainage layer of JBL Manado, covered with JBL TerraBasis or (moistened) JBL TerraBark (moistened). You need to create climbing possibilities with branches. Depending on the species, good planting is advisable. Illumination with UV light is not necessary. Therefore many types of lamps are suitable: JBL ReptilJungle Daylight, JBL SOLAR REPTIL JUNGLE T8, JBL ReptilDay, JBL LED SOLAR NATUR, JBL Reptil LED Daylight 12W

Leaf insects and stick insects

With over 2500 species, these quirky insects are widespread. They often propagate through asexual reproduction (parthenogenesis). Depending on the species, stick insects (also called walking sticks) can grow up to 20 cm long. Depending on the species, good planting in a terrarium of at least 40 x 30 x 40 cm is advisable. Lighting with UV light is not necessary. The lighting is more for the plants to grow. Thus many lamp types are suitable: JBL ReptilJungle Daylight, JBL SOLAR REPTIL JUNGLE T8, JBL ReptilDay, JBL LED SOLAR NATUR, JBL Reptil LED Daylight 12W. Substrate with JBL TerraCoco or JBL TerraBasis. If the lighting does not produce heat, use a heating mat during the day (JBL TerraTemp heatmat). Stick insects and leaf insects eat a solely vegetarian diet consisting of the leaves of strawberries, blackberries, oak, roses and others.

Since individual species may differ greatly in their care requirements, please check their exact demands with your specialist dealer.

Arachnids

Spiders & scorpions

Unlike the insects, all arachnids have not 6, but 8 legs. They have most of their nerve cells in their legs, so you could say they think with their legs! Spiders and scorpions are ideal for smaller terrariums. Extreme caution is required with some of them because of their toxicity. Please also remember that terrariums with poisonous animals should be secured with a lock (JBL TerraSafe). Spiders and scorpions do not require UV-A and B proportions in their lighting. They need light to generate heat but no UV radiation (JBL ReptilJungle Daylight, JBL SOLAR REPTIL JUNGLE T8, JBL ReptilDay, JBL LED SOLAR NATUR, JBL Reptil LED Daylight 12W).

Scorpions

Scorpions are very interesting terrarium inhabitants and not difficult to keep.

They manage well with smaller terrariums of 30 x 30 x 20 cm. Only Arizona Desert hairy scorpions (H. arizonensis), Tanzanian red clawed scorpion (P. cavimanus) and emperor scorpions (P. imperator) need slightly longer terrariums of about 60 x 30 x 30 cm. For scorpions, we roughly distinguish between two habitat types: the steppes and deserts (dry terrarium) and the rainforest, forest or bush landscape types (semi-moist terrarium). Accordingly, the terrarium soils need to be covered with sand / sand / clay mixture in the dry terrariums or with a soil / sand mixture in semi-moist terrariums. For the sand part JBL TerraSand natural yellow is very well suited. The soil proportion can be generated with JBL TerraBasis. Hiding places made of stones or wood are important. Please always glue decoration materials well (JBL ProHaru Universal 80ml), so they do not collapse and hurt the animals. Plants are not required in either type of terrarium, but may be used for aesthetic reasons. In dry or semi-moist terrariums, temperatures between 30-35 ° C should be reached during the day and decreased to around 20 ° C at night. Euscorpius carpathicus likes it a bit cooler (25 ° C and 18-20 ° C at night). The humidity should be 30-50% in dry terrariums and 60-80% in semi-moist terrariums. Ask your dealer if your chosen scorpion species prefers individual, pair or group keeping. All scorpions only eat live food, mostly house crickets, grasshoppers and crickets. Their brood care is especially interesting! They do not require UV illumination and can be ideally kept with the following lamps: JBL ReptilJungle Daylight, JBL SOLAR REPTIL JUNGLE T8, JBL ReptilDay, JBL LED SOLAR NATUR, JBL Reptil LED Daylight 12W, The animals also need water but need to be protected from drowning. Therefore, a water gel (JBL TerraGel) in a small bowl of water (JBL ReptilBar SAND) is most suitable.

Tarantulas

The most popular spider group must be the tarantulas, which are also considered to be peaceful pets by the indigenous people of South America who keep them and let their children play with them (the spiders probably don't like this much, but they tolerate it).

Around 900 species not only populate tropical rainforests, but also dry desert areas or even cooler mountain forests. All tarantulas are predators that feed on insects, birds and small mammals. Their poison is not fatal to humans, but can have differing effects, comparable to a wasp sting. Tarantulas are solitary and often nocturnal animals. The animals moult and can live to become 30 years old. Depending on the size of the tarantula species, the terrarium needs to have a floor area of at least 30 x 30 cm. The height depends on whether the animals like to climb. The bottom substrate requires a layer thickness of 8-10 cm. The type of substrate you choose depends on the species. The popular American pink toe (Avicularia metallica), for example, needs moisture-retaining material such as JBL TerraBasis or JBL TerraCoco Humus. However chose a mixture of soil and sand for Chilobrachys huahini or Grammostola actaceon. All spiders need a small, flat drinking bowl (JBL ReptilBar GREY). The JBL drinking bowls have the beneficial feature of a small rescue ladder to help the feeder animals to get out of the water. Small spiders and juveniles of larger species can drown in deep water! If you keep these use water gel (JBL TerraGel) instead of water. Lighting with UV light is not necessary. The lighting is more for plant growth. In this case a lot of lamp types are suitable: JBL ReptilJungle Daylight, JBL SOLAR REPTIL JUNGLE T8, JBL ReptilDay, JBL LED SOLAR NATUR, JBL Reptil LED Daylight 12W. If the lighting does not produce heat, use a heating mat during the day (JBL TerraTemp heatmat). Please note: use heating mats only for species which do not bury themselves in the ground. The animals also need water but need to be protected from drowning. Therefore, a water gel (JBL TerraGel) in a small bowl of water (JBL ReptilBar SAND) is most suitable.

Amphibians

Amphibians, also known as caudata and anura, can be fascinating terrarium inhabitants, and they are enormously attractive both in terms of colour and behaviour. Caudata (salamanders, newts, axolotls) can easily get used to substitute food, while frogs (anura) eat only live food such as flies and so on. This needs to be considered from the start when choosing your animals.

Axolotls

Axolotls are very primitive and cute creatures whose body form has never developed from a larval stage with gills.

They have gills all their lives and are therefore found exclusively in the water. They originally come from a lake near Mexico City (cold altitude), which unfortunately no longer exists. They don't need a land section in the terrarium and can easily be kept in a pure aquarium. It's best to set the water to a cool temperature between 12 and 23 ° C, and because their maximum size can be up to 30 cm, make sure to select a large enough terrarium or aquarium. To cool the water for Axolotl, the JBL cooler range is ideal. It needs to be at least 80 cm in length, but a length of 100 cm is better, especially if several animals are being kept. They do not like a current in the water and love overgrown aquariums with caves and plants. Never pick a sharp-edged substrate, as it is sometimes swallowed during eating. Ideal is JBL Manado and JBL Manado DARK. The nutritional needs of animals which search for their food in an olfactory manner (through their sense of smell), can be perfectly covered by JBL NovoLotl M. For a change, mosquito larvae, earthworms and Tubifex are well suited. If the Axolotls are given the opportunity, they also eat fish. Axolotls do not require UV light and their terrarium can be illuminated with normal aquarium lighting (JBL SOLAR NATUR T8) and JBL SOLAR TROPIC T8, but also with LED lights (JBL LED SOLAR NATUR).

Newts

Although newts live predominantly in the water, they also need a land section in the terrarium.

They should be kept in a small group and need a terrarium with about 80 x 35 x 40 cm. The water part may well be set up with overgrown plants and wood. Depending on the newt species, water temperatures need to be adjusted between 15 and 26 ° C with the help of a heater thermostat (JBL ProTemp S 50). When stressed, some species release a toxic secretion through their skin which should not reach open wounds. As basic food JBL NovoLotl M is suitable, and as a supplement mosquito larvae, water fleas and smaller earthworms. Many native European species are protected! Newts do not require UV light and their terrarium can be illuminated with normal aquarium lighting (JBL SOLAR NATUR T8) and JBL SOLAR TROPIC T8, but also with LED light (JBL LED SOLAR NATUR).

Poison dart frogs (dendrobates)

Poison dart frogs, also called dart-poison frogs or poison arrow frogs, are certainly among the most colourful terrarium dwellers.

They often jump around cheerfully and seek their food. In addition, their terrarium can be built like a piece of rainforest with beautiful plants and a water part. The only "disadvantage": They only eat live insects (fruit flies, springtails, micro crickets). A terrarium for the small hoppers needs a minimum size of 60 x 50 x 50 cm. They do not require UV illumination and can be kept ideally with the following lamps: JBL ReptilJungle Daylight, JBL SOLAR REPTIL JUNGLE T8, JBL ReptilDay, JBL LED SOLAR NATUR, JBL Reptil LED Daylight 12W. All poison dart frogs like to live sociably. A male with several females is ideal. They like to climb and therefore need good opportunities for climbing in the terrarium. The frogs lose their toxicity in the terrarium because they do not receive their natural food (e.g. ants). The air temperature needs to be between 23 and 28 ° C with a humidity between 70 and 90%, as in their habitats in South and Central America.

Red-eyed treefrog (Agalychnis callidryas)

This must be one of the most beautiful frogs in the world and it comes from Central America.

A small group of 6 frogs needs a terrarium of 100 x 80 x 120 cm. Select lighting designed for plants. A UV radiation is not necessary. Ideal are JBL ReptilJungle Daylight, JBL SOLAR REPTIL JUNGLE T8, JBL ReptilDay, JBL LED SOLAR NATUR, JBL Reptil LED Daylight 12W. The air temperature needs to be between 25 and 30 ° C with humidity between 60 and 80 %. The animals are nocturnal and not easy to find during the day. They only eat live flies, crickets and wax moths. As a substrate JBL TerraCoco Humus is ideal. The terrarium needs a large water section (water level 10-15 cm). All robust and large-leaved plant species are suitable. These frogs are not suitable for beginners.

Clawed frogs (Xenopus)

These frogs, which originated in Africa, live exclusively in the water and prefer calm waters with no current.

The aquarium needs a volume of at least 60 litres and a minimum water temperature of 22 ° C. Since the animals look for food on the ground, avoid a sharp-edged bottom material and instead use a substrate like JBL Manado or JBL Sansibar RIVER. They need hiding places made of stones or wood roots. Their food consists of small fish, JBL NovoLotl M, Tubifex as dried food (JBL NovoFex) or mosquito larvae (also JBL NovoFil) and earthworms as live and frozen food. Do not feed too much! The animals are very voracious! Clawed frogs might be kept successfully as small groups in the aquarium. They release secretion through the skin to protect themselves against predators.

Lizards

The lizards form an extremely diverse group of animals that has populated almost all habitats with the exception of the world's ice regions. Only very few species are herbivores which can be fed without animal live food. Please give careful thought to the size of the terrarium you select. Many lizards are very large and need a lot of space. Climbing species require high terrariums, while ground dwellers need a lot of floor space. Aggression within the species can be extremely pronounced (eg in chameleons).

Central (or inland) bearded dragon (Pogona vitticeps)

Although these agamas need a terrarium size of at least 150 cm in length, they are among the most popular lizards of all.

They quickly become very trusting and eat out of your hand. Agamids, which can grow up to 60 cm long, are among the few species of lizards, which (apart from live food such as house crickets, crickets, grasshoppers) mainly eat vegetable food, such as JBL Iguvert, salad, vegetables (no cabbage!), dandelion and flowers. Daytime temperatures in their dry terrarium should be between 30 and 35 ° C with a humidity of 30-40 %. At night, the temperatures need to be lowered significantly and the humidity should rise to about 60 %. The ideal stock is one male and two females. A suitable substrate is JBL TerraSand natural yellow, often mixed with clay. The height of the substrate ought to be 15-20 cm, because the animals like to dig. Wood and stones are often welcome as a basking spot. Bearded dragons need a lot of light, heat and UV and therefore require light sources to supply these. The best lighting are LUW spotlights, which offer all three features (JBL ReptilDesert L-U-W Light alu). But also well positioned UV spotlights can also be used (JBL UV-Spot plus). Important are spots to retreat, so that the animals can also visit cooler areas. Please note that, when using heating mats like JBL TerraTemp heatmat, to create cooler areas, these must never be placed under the entire surface of the terrarium. A drinking bowl (JBL ReptilBar GREY), is important to guarantee they are getting enough liquid.

Spiny-tailed lizard (Uromastyx species)

These Agamas live in desert regions of North Africa and reach 30-40 cm in length.

Your dry terrarium should have at least 120 x 80 cm of floor area. A substrate such as JBL TerraSand natural red is suitable for burrowing animals. Don't use fine, slippery sand with a 20-30 cm layer thickness! Stones, wood and cork are good climbing opportunities, but need to be secured with JBL ProHaru Universal 80ml adhesive to prevent them from collapsing. LUW spotlights are the best lighting source to provide light, heat and UV (JBL ReptilDesert L-U-W Light alu). But also well positioned UV spotlights can also be used (JBL UV-Spot plus). Important are spots to retreat, so that the animals can also visit cooler areas. Please note that, when using heating mats like JBL TerraTemp heatmat, to create cooler areas, these must never be placed under the entire surface of the terrarium. Spiny-tailed lizards are predominantly vegetarian and feed on dandelion, millet, rice, sunflower seeds and supplementary animal food comprising crickets, cockroaches and grasshoppers. The terrarium needs temperatures between 28-35 ° C during the day, under the spotlight up to 45 ° C, and at night 18-20 ° C. The humidity is ideally between 50 and 60%. The lizards can be kept individually and in pairs, whereby it can come to brawls. A drinking bowl (JBL ReptilBar SAND is important to ensure the liquid supply.

Beaver-tailed agamas (Xenagama species)

These African highland lizards, which don't grow larger than 15-20 cm, are becoming increasingly popular as their terrariums only need a length of 100 cm.

They like to dig and need a bottom layer of about 20 cm, made of e.g. JBL TerraSand natural red (which is ideal for forming caves when moistened). Rock formations with loopholes form the decoration of your desert terrarium. Stones, wood and cork are good climbing opportunities, but need to be secured with JBL ProHaru Universal 80ml adhesive to prevent them from collapsing. A drinking bowl (JBL ReptilBar GREY), is important to ensure the liquid supply. LUW spotlights are the best lighting source to provide light, heat and UV (JBL ReptilDesert L-U-W Light alu). But also well positioned UV spotlights can also be used (JBL UV-Spot plus). Temperatures between 26-32 ° C are recommended during the day, but only 20-26 ° C at night. The humidity may fluctuate between 40 and 70%, at night higher

than during the day. Beaver-tailed agamas are vegetarian and feed on dandelion, leaves, JBL Iguvert, flowers with supplementary animal food from crickets, house crickets and grasshoppers. A drinking bowl (JBL ReptilBar SAND), is important to ensure the liquid supply.

Anolis species

Anolis species are very popular smaller lizards from the rainforests of Central America and the Caribbean Islands.

Almost every island has its own anolis species, which always lives in accordance with the geographic features. The rainforest or humid terrarium needs at least 50 x 50 x 60 cm for the smaller species and 150 x 100 x 150 cm for the larger species, such as the knight anolis. For a substrate use a sand-soil mixture JBL TerraSand natural yellow with JBL TerraBasis). A drinking bowl (JBL ReptilBar SAND), is important to ensure the liquid supply, even if the animals absorb drops of water after spraying. All anole species eat only live food such as flies, house crickets, wax moths and crickets. The big species also like baby mice. Some island anolis species also eat fruit. Make sure the daytime temperatures are around 28-32 ° C and the nighttime temperatures 20-25 ° C (the red-throated anolis even needs 16-20 ° C). The humidity is ideally between 60 and 70% (80% at night). We

recommend you keep them in a harem with one male and several females. LUW spotlights are the best lighting source to provide light, heat and UV (JBL ReptilJungle L-U-W Light alu). But well positioned UV spotlights can also be used (JBL UV-Spot plus).

Chameleons (Chamaelo and Furcifer species)

It's impossible to classify chameleons in one group.

They can be a few centimetres small or up to 60 cm tall. Chameleons live in both rainforests and savannahs. All chameleons eat live food, some even mice, but only the Yemen chameleon (C. calyptratus) also needs vegetable food. Be careful with too fatty foods like mealworms! Most chameleons need a semi-humid terrarium with a lot of climbing opportunities and a floor area of at least 120 x 70 cm. Only smaller species require less floor space. The height can be between 100 and 200 cm because of the climbing opportunities. As a substrate a mixture of peat-soil (JBL TerraCoco Compact, JBL TerraCoco Humus and JBL TerraBasis) is suitable. Sufficient ventilation with a gauze cover against heat accumulation and moisture is very important, as this is and should be between 50 and 70%. Water is usually absorbed by drops on the leaves. Spraying is therefore very important. The daytime temperatures need to be 25-30 ° C and the nighttime temperatures 20 ° C. Most chameleon species are aggres-

sive and need to be kept individually. Only a few species such as the Meller's chameleon and the Malagasy giant chameleon (F. oustaleti) can also be kept in pairs. LUW spotlights are the best lighting source to provide light, heat and UV (JBL ReptilJungle L-U-W Light alu). But well positioned UV spotlights can also be used (JBL UV-Spot plus).

Collared lizards (Crotaphytus collaris, C. bicinctores)

Only 25-30 cm in length, they are one of the smaller iguana species.

They come from the desert regions of southern North America and therefore require a dry terrarium with a floor area of 150 x 60 cm. With stones (well glued with JBL ProHaru Universal 80ml), cork, roots and plants you can build beautiful decorations. Vertical rock walls with horizontal protrusions have proven to be advantageous. A drinking bowl (JBL ReptilBar GREY), is important to ensure their liquid supply. LUW spotlights are the best lighting to provide light, heat and UV (JBL ReptilDesert L-U-W Light alu). But also well positioned UV spotlights can be used (JBL UV-Spot plus). Temperatures between 28-35 ° C are recommended during the day, but only about 20 ° C at night. The humidity needs to be about 30%, at night - much higher than during the day. Important are places to retreat to, so that the animals can also visit cooler areas. Please note that, when using heating mats like JBL TerraTemp heatmat, to create cooler areas, these must never be placed under the entire surface of the terrarium. Experience shows that sand is an unsuitable substrate and that stones are a better ground for the animals. All collared lizards only eat live food such as house crickets, spiders, grasshoppers and crickets.

Green iguana (Iguana iguana)

At a length of 2 m green iguanas are very impressive to look at and they need a correspondingly large terrarium with at least 2 x 2 x 2 m.

A sand-humus mixture (JBL TerraSand natural yellow & JBL TerraBasis) forms the bottom ground for the many stable climbing opportunities and vigorous plants above. The branches should be mostly thicker than the body of the iguanas. With the help of a drip water system or frequent spraying, the humidity should be kept at about 60-80 %. You can keep iguanas in pairs, but also individually or as a group in a correspondingly large terrarium. The animals are very curious and can become tame. Daytime temperatures are 25-30 ° C and night temperatures 20-25 ° C. Green iguanas are almost the only lizards which feed exclusively on vegetarian diet, even if they are not averse to eating baby mice. Their main food should be leaves, supplemented with seedlings, vegetables and fruit. JBL Iguvert is an ideal basic food for the animals, supplemented by vegetables and fruit. LUW spotlights are the best lighting source to provide light, heat and UV (JBL ReptilJungle L-U-W Light alu). But also well positioned UV spotlights can be used (JBL UV-Spot plus). Remember to maintain the correct distance between the animals' basking area and the lamp to prevent burn injuries. Green iguanas can climb extremely well with their sharp claws. A large drinking bowl (JBL ReptilBar SAND), is important to guarantee they are getting enough liquid.

Common chuckwalla (Sauromalus obesus)

Chuckwallas live in rocky regions of North America's desert areas with corresponding daytime temperatures between 30 and 40 ° C.

At night, temperatures drop to around 20 ° C. As the animals sunbathe intensively, a lighting with strong UV radiation is necessary. With the help of heat-generating spotlights (JBL ReptilDesert L-U-W Light alu), the temperature can be increased during the day and lowered automatically after switching off. When using heating mats (JBL TerraTemp heatmat), it's absolutely necessary to switch them off by using a timer. The humidity should be as low as possible. With stones (well glued with JBL ProHaru Universal 80ml), cork and plants you can build beautiful decorations. Each animal needs its own basking area! JBL TerraSand natural yellow is well suited as a substrate. Because the animals like to dig, the rock constructions should NEVER be built on the sand, but always directly on the bottom plate! Even though the animals cover their water needs through the food, a drinking bowl (JBL ReptilBar SAND) is helpful. As vegetarians they like JBL Iguvert supplemented with flowers, leafy vegetables and fruit every once in a while.

Geckos (Gekkota)

Geckos are very popular terrarium dwellers, but they inhabit very different biotopes.

The leopard gecko, for example, lives in the Near East's desert regions. In contrast, the tokay geckos and the day geckos of Madagascar live in rainforests. So accordingly the terrariums need to be designed differently. Leopard and other desert geckos need at least 120x80 cm of floor space with about 40-50 cm of height for the rock constructions. A sand-clay mixture ought to be used as substrate. The perfect substrate is JBL TerraSand natural red, which is also well suited for digging species. All rock constructions need to be secured with an adhesive (JBL ProHaru Universal 80ml) to prevent them from collapsing. Keep the daytime temperatures at 28-32 ° C and the night temperatures at 20-24 ° C. The ideal humidity is 40-60 % during the day and 60-80 % at night. When setting up hiding places, you need to consider that each animal needs its own den. Since leopard geckos are nocturnal, UV-producing lighting is not necessary. You can simulate night lighting with blue light. A UV and heat-generating lamp during the day, such as JBL ReptilDesert L-U-W Light alu is not a problem and automatically leads to a temperature reduction after it is switched off in the evening. A drinking bowl (JBL ReptilBar GREY), is important to ensure their liquid supply. Leopard geckos predatorily feed on baby mice, insects and beetles. Mealworms and waxworms should not be fed too often because of their high fat content.

For rainforest inhabiting species such as Madagascar's day geckos a smaller floor area of approximately 90 x 90 cm, but a greater height of 120 cm of the terrarium is recommended. This allows the animals enough climbing opportunities on (smooth) wood and plants. A sand-clay mixture as a substrate and a daytime temperature at 25-30 ° C are appropriate. At night, the temperature may be lowered to 18-24 ° C. The humidity should be 50-90 %. Day geckos feed mainly on insects, but also eat fruit pulp and fruit nectar. LUW spotlights are the best lighting source to provide light, heat and UV (JBL ReptilJungle L-U-W Light alu). But well positioned UV spotlights can also be used (JBL UV-Spot plus). Since the animals can climb along almost every surface, heat protection screens for the lamps are a must (JBL TempProtect II light). Despite regular spraying a drinking bowl is necessary.

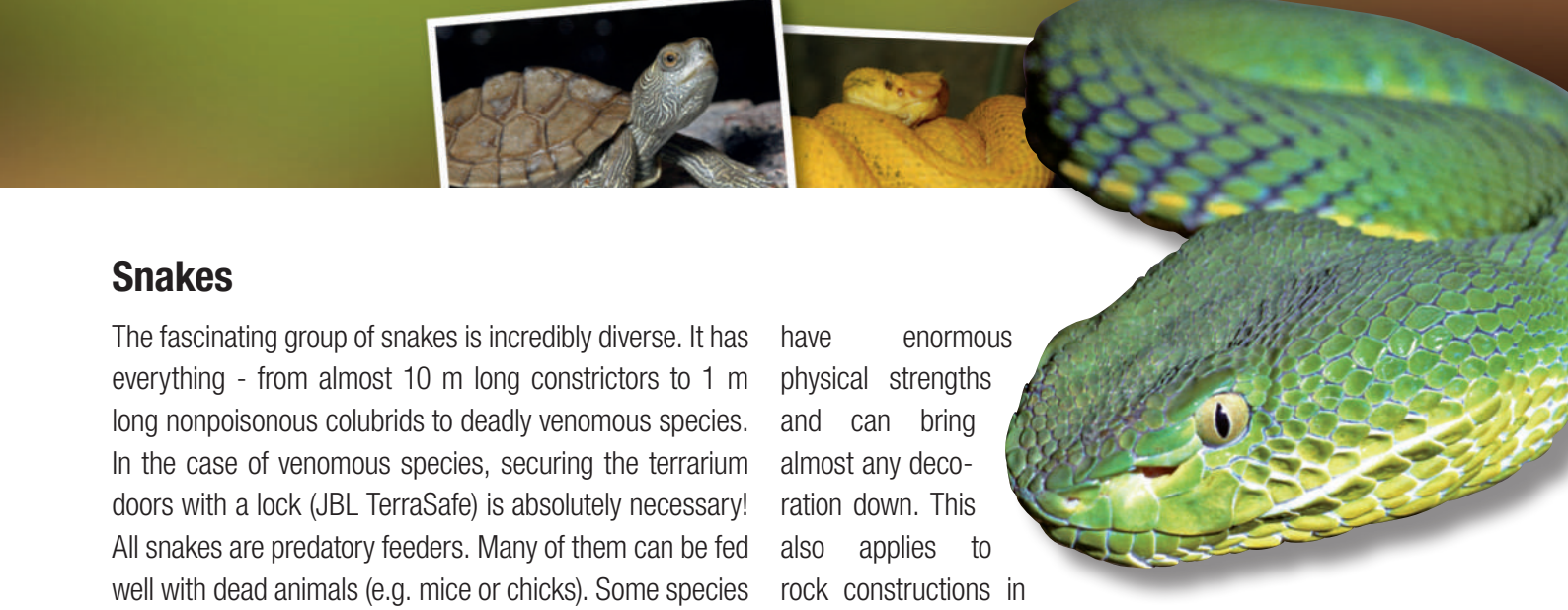
Skinks (Scincomorpha)

With over 1000 species the skinks are the lizard group with the most species.
The lacertid, the tegu and the East African spiny-tailed lizard belong to this lizard group too, although they do not have smooth skin like the skinks themselves. The Berber skink, which can become up to 40 cm long, is very popular. It lives in northwest Africa and needs a dry terrarium with 150 x 100 cm floor area. The rock constructions, which may be interspersed with plants, gives it its height. A sandy soil made of JBL TerraSand natural yellow with a 10 cm thickness is recommended, because the animals also like to dig. Part of the floor always needs to be kept slightly damp (no floor heating!). Raise the temperature during the day with a JBL ReptilDesert L-U-W Light alu spotlight to 28-30 ° C and lower it to 18-20 ° C at night. This emitter also ensures the all-important UV supply. A drinking bowl (JBL ReptilBar GREY) is important to guarantee they are getting enough liquid. Humidity plays a subordinate role. Berber skins are predatory, like many skinks, and like to eat young mice and insects of all kinds. Even soft fruit, vegetables and salad are welcome.

Monitor lizards (Varanus)

The 3 m long Komodo dragon must be the best known representative of this lizard group.

But other species are only 20 cm long! There are monitor lizards which live in rainforests and need appropriately equipped jungle terrariums (e.g. emerald tree monitor Varanus prasinus). A lot of monitor species love water and need a terrarium with a large water = bathing area (e.g. Asian water monitor V. salvator). A large number of monitor species come from dryland areas and need a dry terrarium (e.g. savannah monitor V. exanthematicus). Almost all monitor lizards are predators and feed off anything they can hunt and eat. Find out exactly which food is right for the monitor species you have chosen! The spiny-tailed monitor (V. acanthurus), for example, should only be given insects! Humidity, temperatures and lighting need to be adapted to the respective terrarium type. Since all monitors are diurnal, lighting with a high UV content is urgently needed. Thanks to metal halide lamps JBL ReptilDesert L-U-W Light alu and the JBL UV-Spot plus the right UV-A and B supply is always ensured.



Snakes

The fascinating group of snakes is incredibly diverse. It has everything - from almost 10 m long constrictors to 1 m long nonpoisonous colubrids to deadly venomous species. In the case of venomous species, securing the terrarium doors with a lock (JBL TerraSafe) is absolutely necessary! All snakes are predatory feeders. Many of them can be fed well with dead animals (e.g. mice or chicks). Some species like to hunt small fish & frogs, others insects and some species are very hard to get used to dead food. This needs to be clear to anyone interested in snakes. The contents of your freezer may need to change accordingly.

Depending on the habitat you'll need to build a dry, semi-dry or even a humid terrarium. A 3 m long boa constrictor imperator needs a terrarium with the dimensions 200 x 100 x 200 cm. Except for desert species, a bathing pool (JBL ReptilBar) pool is almost always recommended.

The bath water must be clean - either by filter or by daily renewal. For larger baths the JBL internal filter series JBL CristalProfi i is very well suited (for bathing pools up to 110 litres e.g. the JBL CristalProfi i80 greenline). It is best to use a water conditioner (JBL Biotopol T) to bind any existing pollutants such as heavy metals. Care should be taken when using climbing opportunities to ensure good anchorage and screw connection to the branches. Snakes have enormous physical strengths and can bring almost any decoration down. This also applies to rock constructions in desert terrariums, which need to be well inter-connected with a non-toxic adhesive (JBL ProHaru Universal 80ml). The type of substrate depends on the snake species being kept. For many of them, such as pythons and colubrids JBL TerraBasis is well suited. Very large constrictors prefer coarser substrates like JBL TerraCoco coconut chips. But also beech wood shavings, such as JBL TerraWood are very popular with boas and pythons. For desert snakes JBL TerraSand natural yellow is mostly used. Since most snakes are day-active, lighting with UV content is a must. With the help of metal halide lamps JBL ReptilDesert L-U-W Light alu and the JBL UV-Spot plus the right UV-A and B supply is always ensured. Even for nocturnal species such as the green tree python, UV radiation is important because the decrease in UV radiation in the evening is the start of its activity time and it receives a lot of UV radiation during the daytime during its resting phase in the treetops. It is vital to research the living conditions of your own snake species.

Constrictors

Virtually all constrictors come from forest biotopes.

In deserts they would not be able to approach their victims unnoticed. Find out everything about the maximum size of the snake and select the terrarium size accordingly. For climbing species, the height of the terrarium is the focus, whereas for soil-dwelling species the soil surface is more important. For long term vacationers, constrictor snakes are ideal, as a larger amount of food (depending on the size of the snake) is sufficient for them for many weeks or months.

Colubrids

Most colubrid species are nonpoisonous and because of their small size very well suited for terrariums.

The garter snake and the corn snake are considered ideal beginner animals whose care and nutrition is very easy. If you don‘t want to feed mice or other larger animals, you will find colubrid species which hunt fish by themselves in the water.

Vipers, pit vipers, elapids and back-fanged snakes (Boiginae)

Only about 10% of all snake species are poisonous and we need to differentiate between their toxicity. A species can indeed have an extremely strong poison, but injects only a small amount (sea snakes) or have a less toxic poison which is injected in large quantities.
This can then prove deadly for humans. Dealing with poisonous snakes is only for the expert. The terrarium definitely needs to be well locked (JBL TerraSafe). In case of a bite, it is also crucial where the bite occurred. A bite in the foot is not as much a problem as a bite in the upper body, because the distance to the heart is far less. An appropriate anti-serum for your highly venomous species should always be at hand. In addition, people react to poisons very differently - this is comparable to insect bites.
Poisonous snakes live in a wide range of habitats: from deserts (e.g. eastern diamondback rattlesnake, horned desert viper) to forests

(e.g. rhinoceros viper, Indian cobra, long-nosed whip snake). The terrarium needs to be set up accordingly.

Tortoises and turtles

Turtles and tortoises have reached most biotopes: the sea, the land, the swamps and the fresh water, and the terrarium design needs to be adapted accordingly. When buying juveniles people often forget the size the animals will reach when fully grown and which terrarium size will then be needed. They also tend to forget the high ages they can reach!

Tortoises

Tortoises are the most common terrarium animals ever.

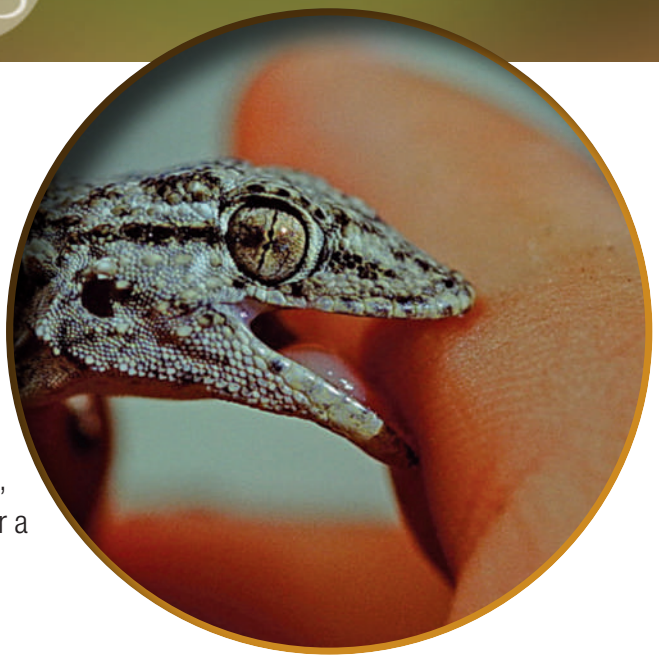
They are especially popular with children. Most species can be kept as a couple or as a group. A male with several females is ideal. The gender distinction can be very easily be determined by the tail's shape and its length. Unfortunately, tortoises are often kept in too small terrariums. Although a Hermann's tortoise (Testudo hermanni) only grows to a size of 20 cm (length of shell), it needs a terrarium with a surface area of 4-5 square metres for their well-being. The side walls need to be 60 cm high and a cover is recommended too. As a substrate sand-clay mixtures (JBL TerraSand natural red & clay) or sand-soil mixtures (JBL TerraSand natural red) & (JBL TerraBasis) are suitable. Stones and cork are well suited as decorations and hideouts. Stones need to be firmly glued together to prevent slipping (JBL ProHaru Universal 80ml). It is a good idea to lay out part of the floor with red sandstone. There, the claws of the tortoises get naturally scuffed. A drinking and bathing bowl (JBL ReptilBar SAND) in a suitable size is very welcome. The shell care can be done with JBL Tortoise Shine. Since tortoises are true sun worshipers, heat and UV-emitting lighting is absolutely vital. Metal halide lamps are ideal (JBL ReptilDesert L-U-W Light alu) or UV spotlights (JBL UV-Spot plus). Be sure to observe the recommended distance between the lamp and the animal. For the diet of tortoises JBL Herbil NEW has been developed as a staple food. For a change you can feed them with JBL Agivert which can be supplemented with hay, fresh herbs, grasses and vegetables. Tomatoes, bananas, cabbage, citrus fruit and carnal food are not suitable!

Turtles and pond turtles

The active little juveniles inspire everyone who sees them.

Most turtles are not very difficult to keep, but it's quite possible they will reach a size of 30 cm! Then the aqua-terrarium needs a size of at least 120 x 50 x 50 cm. Keep the water level in the water section as high as the shell of the turtle is long. Good filtering with a large-volume external filter (JBL CristalProfi e702 greenline) is useful to keep the water clean and to prevent the need for constant cleaning, but avoid a strong current. The water temperature needs to be around 25 ° C. But the animals also tolerate lower and higher temperatures. Unfortunately, turtles are repeatedly set free in the local wild. They can certainly survive, but they are invasive species which displace the native ones!!! As a substrate for the water part any substrate that is not sharp-edged (JBL Manado, JBL Sansibar RIVER) is suitable. At night, the temperatures can drop, because most species we keep are not from the tropics! In addition to the water section, a land section is very important. There is often a large piece of cork (JBL Cork Bark), where the animals can go to bask. A land section with sand, where egg deposition is possible, is better. For lighting, a heat and UV-emitting lamp is recommended. Metal halide lamps are ideal, like the JBL ReptilDesert L-U-W Light alu. Even if the animals do not live in the desert, a "desert lighting" is useful, as the full sunlight and not a muted jungle light reaches the turtles on the river bank. Their diet is simple and there is a wide choice of foods available: JBL Turtle Food as staple food, supplemented by JBL Agil food sticks, JBL Gammarus with gammarus crustaceans, JBL Energil (dried fish), JBL Calcil with healthy calcium and JBL ProBaby, as well as JBL Rugil for young turtles.
Turtles like to eat plants! Therefore, adding aquatic plants to the terrarium is a losing battle. Please feed your turtles regularly with aquatic plants, dandelion and duckweed. Adult turtles need more plant food than younger animals. It's no problem to keep turtles in small groups. A male with several females is ideal. The gender distinction can be very easily be determined by the tail's shape and its length.

Choosing your animals



Which animal suits you?

You may already know which terrarium animal you would like to keep. The question now is whether this animal also suits you, and whether you are willing and able to care properly for the species. If you are not at home much, e.g. lizards which need to be fed daily, are completely unsuitable, whereas a constrictor snake which doesn't need any food for a long time after a meal, would be ideal.

In addition to the work involved, the size of the animal or the appropriate terrarium will be the main criterion. For example you might think a green iguana is perfect for you, but you simply have no room for a 2 x 2 x 2 m terrarium, even if you get rid of the TV. Feeding, care and terrarium size are therefore the most important criteria for finding the right animal.

Once you've narrowed down the group of animals, the question is whether to go for a desert or rainforest terrarium. The hobby gardener and plant lover, of course, may find their calling more in a rainforest terrarium than in a desert terrarium, even if desert plants need some care too.

Maintenance

Feeding, cleaning, monitoring – recommendations for action from daily care to holiday maintenance.

Feeding the terrarium animals

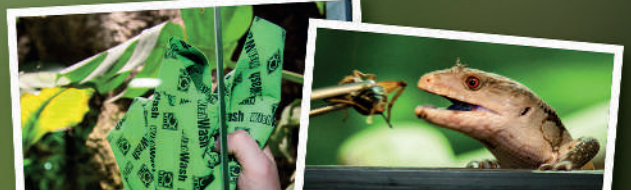
A healthy diet is more than just feeding

In order to keep terrarium pets healthy, it is vital that they are fed appropriately for their species. This is the only way to protect against deficiencies e.g. rickets or lifestyle-based illnesses (fatty liver, renal gout). In order to provide a balanced diet you'll need to know the animals' natural eating habits. In a terrarium, omnivores or opportunistic feeders especially like to eat types of food they would rarely find in the wild, or only at certain times of the year. Some herbivores, for example, will also eat live food. If terrarium pets are given fully atypical food, for example, toast soaked in milk, cooked pasta, minced meat or cat food, a surprising number will greedily devour this. However, not everything that the terrarium animals like to eat is good for their health. The reason why green iguanas do not eat cat food in the rainforest is not that the tins are hard to open, but simply because there is none there. Simply giving the animals their favourite food ("he just loves it!") for convenience or out of excessive care is the wrong way to feed.

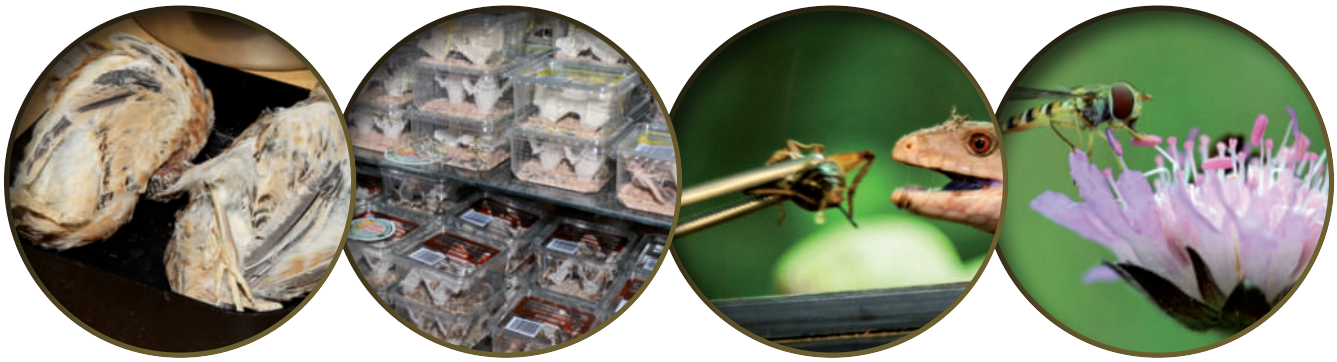
How often should the animals be fed?

From once a day to once every 6 months

There is no simple general answer to this question. The amount of food per meal and the intervals between feeds can vary widely according to the species. Young animals usually need to be fed daily in the first few weeks of course, whereas adults only have to be fed 2-3 times a week. Depending on their age, snakes only need food at very long intervals, whereas the small colourful tree-climbing frogs (Dendrobatidae) develop serious problems after only a few days without food. The amount of food given should also be suited for the pet. A lot of animals eat "in advance", to be ready for the annual dry season in their natural habitat when food becomes scarce. They cannot know, of course, that there will be no shortage of food in the terrarium and, as a result, do not stop this advance eating as their owner generously and continuously overfeeds them. This is why desert animals are at a far greater risk of fatty degeneration than rainforest animals. Overfed animals become sluggish, their sex organs may become fatty, leading to sterility, or they may even die from organ failure, as when their liver stops functioning because too much fat has been stored.



Food for carnivores



Most terrarium animals are “animal eaters”, so-called because they eat whole, live animals. As they are “programmed” to particular stimuli, such as the movement of the live food or, in the case of snakes, the warmth of the small mammal or bird serving as their prey, they can rarely be trained to accept substitute food. There are a few exceptions. Snakes can often be successfully brought to accept dead prey if it is warmed to 37-40 °C (warming them up in hot water or with a hair dryer) before being offered as food.

Nowadays, specialist pet shops offer a wide range of animals as live food e.g. small mammals, grasshoppers, cockroaches, crickets, house crickets, flies, fruit flies, springtails, worms, mosquito larvae, wax worms or crustaceans. Compared with the vast range available in the wild, this is still a very moderate selection. To avoid deficiency symptoms, the type of food animals purchased should be changed frequently instead of buying just one kind.

Last, but not least, the feeder animals that are purchased should be improved by feeding with high-grade food prior to being fed to your terrarium pets. This can be done by feeding them up with high-grade food mixtures such as JBL TerraCrick, bran, herbs, fruit, vegetables and minerals, which significantly improves their nutritional value. Caution: You CANNOT recognise the nutritional value of food animals from the outside! The herbs, minerals and dietary fibres which a cricket eats shortly before being offered as “stuffed” food, are then eaten by a carnivore which would normally not give vegetarian food a second glance. If you don’t want to touch the feeder animals, or risk getting bitten by your terrarium pets when they reach out to bite their prey, you can use a pair of long pincers (JBL ProScape Tool P straight or JBL ProScape Tool P slim line) to offer them live food.

In summer, the food on offer to insect eaters can be broadened to include meadow plankton, which you can gather yourself. Do not, of course, pick these from areas with intensive agricultural cultivation using herbicides or similar. Protected species should likewise be released if caught. Obtaining prior permission from the property owner may prevent trouble arising as you collect your food.

If, despite careful handling, a food cricket should escape, any free-roaming “creepy crawlies” can easily be caught by non-toxic means such as a glue sheet or a baited trap, JBL LimCollect.

Food for vegetarians

Meat isn't everything

Pets which are solely or primarily vegetarian, e.g. green iguanas, chuckwallas or European tortoises, can also be fed with meadow plants (such as dandelion, clover, ribwort), various salad plants and seedlings, chopped vegetables or dried herb mixtures, straw and lucerne pellets in a terrarium. JBL offers three high-grade readymade foods for vegetarian terrarium pets: JBL Iguvert for iguanas and JBL Agivert, as well as JBL Herbil NEW for tortoises. These foods contain only vegetable ingredients with a high fibre content and only a little protein. Spiny-tailed lizards can also be fed various seeds, e.g. from the bird food shelves. As a rule, animals which are distinctly plant-eating need low-protein food that is rich in fibre and high in roughage to remain healthy.

JBL Iguvert

Main food for iguanas and lizards

The right food for your turtles and tortoises

European tortoises

Testudo hermanni boettgeri

Testudo marginata

Testudo greaca iberia

Testudo hermanni hermanni

Staple food	Supplementary food
① ② Supplement to staple food: Salad (not lettuce), dandelion, wild herbs, clover, chickweed	Cucumber, Apple, Zucchini, Carrot **Not suitable:** Tomato, Banana, Citrus fruit, Food containing meat

Tropical tortoises
Rainforest

Geochelone carbonaria

Geochelone denticulata

Staple food	Supplementary food
① ②	Fruit, bananas, green plants, wild herbs **Not suitable:** Citrus fruit, food containing meat

Tropical tortoises
Arid regions

Geochelone pardalis babcocki

Geochelone elegans

Geochelone sulcata

Geochelone radiata

Staple food	Supplementary food
① ②	Hay, ruccola, wild herbs, apples, pears **Not suitable:** Citrus fruit, food containing meat

① JBL Herbil NEU
Complete food for tortoises

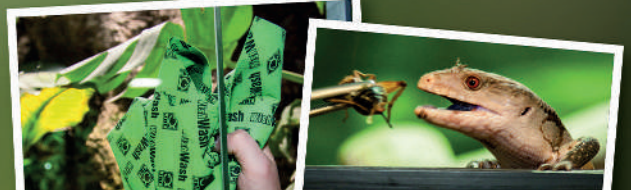
② JBL Agivert
Main food for tortoises 10 – 50 cm in size

③ JBL Turtle Food
Main food for turtles, 10 – 50 cm in size

④ JBL Gammarus
Treats for turtles from 10 to 50 cm

⑤ JBL ProBaby
Special food for young turtles

⑥ JBL Rugil
Food sticks for small turtles



Turtles (swamp areas)

Emys orbicularis

Terapene major

Mauremys japonica

Terapene carolina

Staple food	Supplementary food
③ ④ ⑤ ⑥	⑦ ⑧ ⑨ ⑩ Rain worms, red mosquito larvae (JBL NovoFil), tubifex (JBL NovoFex), fish, slug and shellfishmeat, mosquito larvae and tubifex as frozen food, baby mice, sweet fruit

Tropical turtles (swamp areas)

Rhinoclemmys pulcherrima

Rhinoclemmys punctularia

Heosemys grandis

Cuora flavomarginata

Staple food	Supplementary food
• Fruit (except citrus fruit) • Slugs • Baby mice • Rain worms • Fish	③ ④ ⑥ ⑩

Turtles

Sternotherus carinatus

Platemys platycephala

Pseudemys concinna

Chinemys reevesi

Staple food	Supplementary food
③ ④ ⑤ ⑥ ⑦	⑧ ⑨ ⑩ Rain worms, fish, slug and shellfishmeat, red mosquito larvae (JBL NovoFil), tubifex, (JBL NovoFex), live flea shrimp

⑦ JBL Agil

Main food sticks for turtles,10 – 50 cm in size

⑧ JBL Tortil

Food tablets for turtles and pond terrapins

⑨ JBL Calcil

Mineralised food sticks for turtles and pond terrapins

⑩ JBL Energil

Main food for turtles and pond terrapins

Food supplements

Vitamins and minerals are indispensable

In the wild, animals adapt to their food spectrum according to their exact needs. With their food, the animals absorb exactly what their organism can digest. In captivity, we rarely manage to copy the natural food spectrum completely. This is why it is often helpful to supply vitamins and minerals separately. With JBL Turtle Sun Aqua for turtles and JBL Tortoise Sun Terra for tortoises JBL offers two vitamin products adapted to the animal types. For other terrarium animals vitamins in powder form (JBL TerraVit Powder) and in liquid form (JBL TerraVit fluid) are available. Here, the dosage form depends on the type of food. Powder is very easy to apply to powdered feeder insects, while drops are ideal for dripping on food sticks or a vegetable diet.

In addition to vitamins, a mineral supplement is often necessary. JBL offers a clever complete solution: the mineral powder JBL MicroCalcium is put into a "shaker box" (JBL CrickBox) together with the feeder animal. The animals, sprinkled with the powder, can then be directly fed to the terrarium animals from the JBL CrickBox.

vitamins/minerals

JBL Turtle Sun Aqua
Vitamins for turtles and pond terrapins

JBL Tortoise Sun Terra
Vitamins for tortoises

JBL TerraVit Powder
Vitamins and trace elements for terrarium animals

JBL TerraVit fluid
Vitamins and trace elements for terrarium animals

JBL MicroCalcium
Mineral supplementary food for all reptiles

JBL TerraCrick
Complete food for feeder insects

bowls and containers/care products

JBL CrickBox
Shaker box to sprinkle powder on feeder insects

JBL ReptilBar GREY/SAND
Feeding, drinking and bathing bowl for terrarium animals

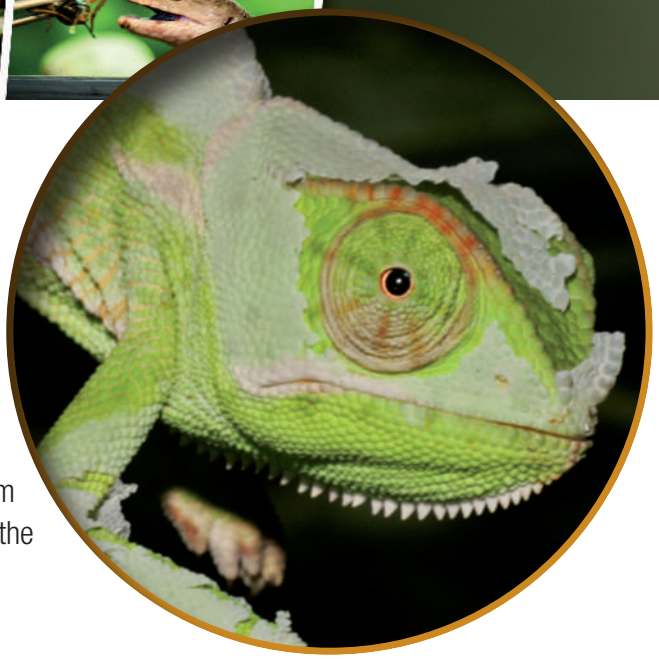
JBL Biotopol T
Water conditioner for terrariums

JBL Tortoise Shine
Shell care for tortoises

JBL TerraGel
Water gel for terrarium animals

JBL EasyTurtle
Special granulate to remove odours

Health check



Checking your animals' health

Anyone who purchases terrarium animals presumably want to look at them every day. If you look out for a couple of few things during the daily check and when feeding, you'll learn to recognize problems early on and then be able to treat them in good time. The later you react to problems, the lower the chances of recovery.

The following points should be kept in mind:

Checking mouths

Mouths should be closed and free of foam or slimy films.

Checking eyes

Moulting should have taken place evenly, check the eyes aren't too deep in their sockets.

Checking skin

Check for wounds, boils and other irregularities.

Checking feet

Check lizards' toes and feet for unshed skin which can cause constrictions.

Checking a turtle or tortoise's shell

Only very young turtles or tortoises should have soft shells.

Checking an animals' nutritional condition

The skin should not have too many folds and the ribs or vertebrae should not be too prominent.

Checking a spider

It should have all 8 legs. Whitish, fungus-like areas on the body are suspicious, whereas a "bald patch" on the abdomen presents no problem.

Cleaning the terrarium

The time spent daily cleaning a terrarium primarily depends on the type of and number of animals being kept. Snakes that only need to be fed every 2-3 weeks or single animals generally produce far less dirt than animals that need to be fed daily or large groups, such as the hundreds of young frogs, which need to be reared when breeding frogs.

The decorations should be practical and removable so that a terrarium can be kept clean without difficulty. The growth on the glass panes of aquarium tanks for aquatic amphibians e.g. axolotls or clawed frogs can be removed by the JBL Algae Magnet, JBL Floaty II or blade cleaners, JBL Aqua-T Handy, similar to a fish tank.

JBL's microfibre cloth (& sponge), JBL WishWash, is very effective here, as it doesn't spread dirt but removes it instead. Dried food remains and excrement in dry terrariums can be vacuumed easily or collected with a pair of pincers such as JBL ProScape Tool P straight and tongs such as JBL CombiFix. In humid terrariums, they usually have to be "scooped out" with some surrounding substrate. Excrement sticking to decorative objects can usually be removed with a brush and hot water. Do not use aggressive chemicals to clean the panes, as residues can cause poisoning. A brush, sponges, blade cleaners and lukewarm water will do to remove any stubborn dirt. Unsightly lime scale rings should be removed with gentle "biological" acids, JBL ProClean Terra glass cleaners and a separate sponge (JBL Spongi). If rocks, wood, technical equipment or other decorative materials are covered with unsightly organic growth (algae, moss, mould, etc.), or are not well-preserved, they can be cleaned with JBL ProClean Power in a container overnight and they'll look like new again. Please just rinse everything well afterwards to make sure the chlorine compound is washed out again.

Only a few minutes cleaning each day is adequate to guarantee proper hygienic conditions for your pets in their terrarium or aquarium. If cleaning is put off too long, the terrarium or aquarium may have to be emptied completely and re-filled, and there may even be unnecessary losses. The usual cleaning procedure for aquariums should be followed for larger-sized water tanks, both with and without a waterfall and in rainforest terrariums. For more details please refer to the JBL website under "Essentials" and "Aquarium".

Useful utensils

Reduce the working time

Pincers and tongs

Pincers like JBL ProScape Tool P straight or tongs like JBL CombiFix can be used to remove excrement, dead feeder animals or other items you do not wish to touch with your bare hands.

Nets

Nets (JBL Fish Net, coarse) are convenient for catching agile aquatic animals in the terrarium, or even animals which have escaped in your home, without harming them.

Temperature control

Thermometers (JBL Aquarium Thermometer Float) and hygrometers (JBL TerraControl) are used to check the climate values in a terrarium.

Safety: terrarium locks

Terrarium locks JBL TerraSafe which slot between the sliding panes are a very useful tool to deny unauthorized persons (e.g. infants or to pets) access to the terrarium.

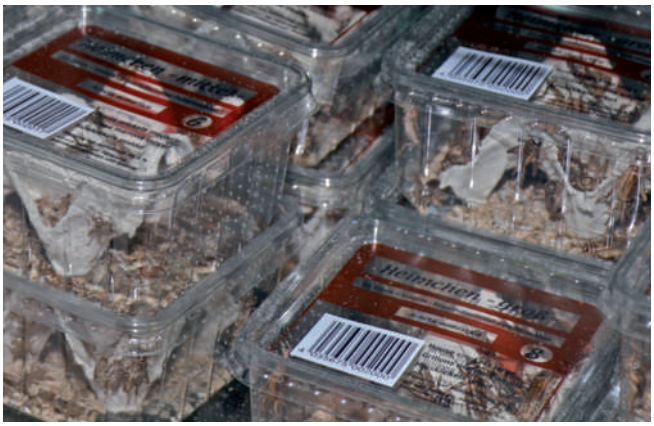
Disinfection

Objects can be disinfected using 70 % alcohol. The object to be cleaned should be completely immersed in the alcohol and left to soak for at least 5 minutes.

Holiday

How does the terrarium manage while you're on holiday?

Some terrarium animal species are perfect for holidaymakers, such as large boas, and some, like frogs, need to be fed every day. The rest are somewhere in between. Ideally, you'll have someone reliable to take care of the feeding while you are away. Since your fridge will anyway be less crowded in your holiday absence, you should have room enough in your fridge for feed while you're away! Automatic feeders, used in aquariums (JBL AutoFood BLACK), are only suitable for amphibious axolotls. Unfortunately coarser pellets as for turtle food (JBL Herbil NEW, JBL Turtle Food) or Iguana food (JBL Iguvert) do not fit into these feeders.



Apart from feeding, regulating the humidity and changing the water in drinking or bathing bowls (JBL ReptilBar GREY) is the secondary activity for your holiday stand-in to take on.

Worldwide destinations of the JBL Expeditions

The JBL Research Team obtains information on aquarium fish and terrarium animals first-hand by carrying out expeditions into the regions where the animals live on a regular basis. There, biotope investigations are performed on site, the results of which are used for publications and the development of JBL's products.
Every fan of nature is eligible for participation: As soon as the details of a JBL Expedition have been set, they are posted on JBL's website. Then it's time to apply – and, with some luck, take part!

- 2001 Sulawesi/Indonesia
- 2002 Sri Lanka & Maledives
- 2004 French Guyana & Caribbean
- 2005 Red Sea/Egypt
- 2006 South Africa & Lake Malawi
- 2007 Negros/Philippines
- 2009 Amazonia & Pantanal/Brazil
- 2010 Tanzania & Lake Tanganyika
- 2012 Central America & Galapagos
- 2013 Vietnam
- 2015 South Pacific & Australia
- 2016 Venezuela
- 2018 Indian Ocean – Madagascar/ Mauritius/Seychelles
- 2019 Eleuthera, Bahamas
- 2019 Japan
- 2021 Colombia

https://www.jbl.de/qr/100393

JBL Expeditions stand for adventure and research, all in one!

Who can take part in the JBL Expeditions & Workshops?

Every lover of nature who is physically fit and at least 18 years of age (at the time of departure), can take part. Proficiency in German and/or English is helpful so that communication within the group is not limited to body language.

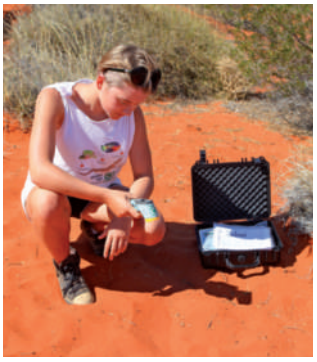
Physical fitness helps withstand the tropical temperatures and humidity levels, which are sometimes high. There are no extreme walks. Sometimes, though, a few walks to beautiful biotopes just can't be avoided.

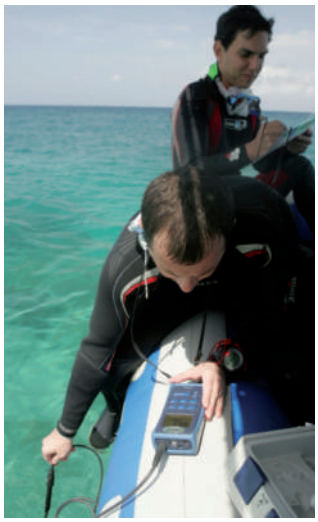
Do you have to be an animal specialist?
No! There are always experts/ scientists along who are very knowledgeable about their field of expertise and willing to help, be it in regard to salt water, fresh water, invertebrates, terrarium animals or plants.

What makes the JBL Expeditions different from other trips?
What's different about the JBL trips is that like-minded persons travel together. On other trips, you can't stop simply to see a beautiful body of water or a lizard basking in the sun next to the road. On our trips, it's normal to be „crazy" and storm every puddle and shrub.

Do you have to be a diver?
If you don't have a scuba diving license, you can go snorkelling. Snorkelling is usually better suited than compressed air diving in fresh water anyways. In the ocean, there are always spots for snorkelling in addition to the scuba diving spots. Sometimes there are animal species that can only be found at great depths, so that they can only be reached by scuba divers. Many participants acquired their scuba diving license after they received their written confirmation for participation.

What about if you can't handle boat travel and car travel?
If you are unable to handle boat travel or car travel, you can use medication against travel sickness. Read the trip description carefully in order to determine whether there is a lot of boat travel and car travel.





How good are the chances of taking part?
If JBL receives more applications than there are spots by the deadline that has been set, unfortunately, a draw must decide. Prospective participant who have not yet taken part in a JBL Expedition are given priority over former participants. Looking back, we can confirm that every applicant had a chance of over 60 %.

Expedition 2001

Sulawesi/Indonesia

Back when Sulawesi shrimp weren't popular yet, the first JBL Expedition led to the island of Sulawesi in the Indo-Pacific Ocean. The base that was selected for the group's activities was near the city of Manado located in the far north of the island.
The primary goal consisted of saltwater research in the Bunaken National Park with coral reefs counted among the most beautiful in the world and boasting the greatest diversity of species.

This first expedition was aimed at determining all of the saltwater parameters on site. A second goal consisted of investigating the water parameters and fish fauna of freshwater lakes in the region.

Bunaken National Park Salt water

Depth	5 m	10 m	20 m	30 m
Temp. (°C)	29,7	29,7	25,0	24,0
pH	8,17	8,13	8,08	8,10
KH (°dKH)	7	7	7	7
Ca (mg/l)	420	400	400	400
Mg (mg/l)	1200	1200	1200	1200
O_2 (mg/l)	7,5	7,3	7,0	7,1

Freshwater biotopes

	Lake Seper	Lake Uluna	Rice field	Ronuanco River
Temp. (°C)	30,2	25,0	35,0	29,2
pH	8,45	6,30	6,60	7,60
GH (°dGH)	3	3	3	4
KH (°dKH)	4	3	3	5
O_2 (mg/)	7,8	7,8		7,5
Conductivity (µS/cm)	144	300		290

Sri Lanka & Maldives

We always try to cover both fields, fresh water and salt water, on our expeditions. Due to the fact that the ocean of Sri Lanka can become very murky within a few hours, we only did the section concentrating on the rain forest and fresh water there and then flew over to the Maldives nearby to measure coral growth in natural surroundings. The high seawater temperatures of 36 °C in 1998 caused by the El Niño phenomenon killed all of the coral down to a depth of around 8 m. Therefore, we were able to determine growth accurately 4 years later and find out that stony coral (madreporarians) grow faster in an aquarium under ideal conditions.

Sri Lanka Freshwater biotopes

	Attanagalu Oya	Puwakpitiya Oya	Aberdeen Falls	Black River	Hatton Oya
Time/Temp. (°C)	12:30/28,7		09:00/23		15:00/23
pH	6,05	6,45	7,4	6,05	7,4
GH (°dGH)	0	3	3		0
KH (°dKH)	3	0	2		0
O_2 (mg/l)			>10		6
Fe	0,6	0,1	0,75		0,7
Cond. (µS/cm)		20	75		50

Maya Tila/Malediven Salt water

Depth	5 m	10 m	15 m	20 m	25 m
Temp. (°C)	28,2	28	28	27,8	28
pH	8,2	8,2	8,5	8,1	8,2
KH (°dKH)	8	8	8	8	8
Ca (mg/l)	380	440	360	480	460
Mg (mg/l)	1220	1060	1240	1320	1160
O_2 (mg/l)	7	7	7	7	7

Expedition 2004

French Guyana & Caribbean

French Guyana offers an opportunity to penetrate deep into the rain forest and spend the night outdoors safely at the same time. This is not the case everywhere in South America. Accordingly, we were able to spend a few days and nights right next to a river in the Amazonian lowlands and record 24-hour trends of temperatures and air humidity. Astonishingly, air temperatures dropped down to 22 °C.

In the Caribbean, we unexpectedly had an opportunity to experience a hurricane with its effects on the reefs live. Hurricane Jeanne developed from a tropical storm into a hurricane right in front of our eyes and conjured a nifty JBL green tint on the faces of our team on the diving ship. We were able to observe how the uppermost sections of the reef were damaged directly by the storm, and indirectly as well by uprooted trees that were drifting in the ocean. A famous marine biologist once said: “A reef roof won’t grow until it has been damaged.” This highly provocative statement is actually not wrong, although, of course, it does not give people a carte blanche to damage natural reefs!

Air temperatures Rainforest

	08:00	12:00	18:00	20:00	0:00
35° C					
32° C					
29° C					
26° C					
23° C					
20° C					

Humidity Rainforest

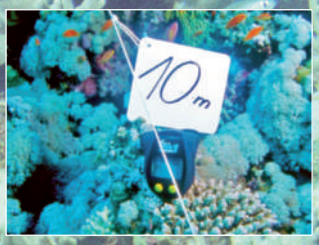
	08:00	12:00	18:00	20:00	0:00
75%					
70%					
65%					
60%					
55%					
50%					

Expedition 2005

Red Sea, Egypt

80 persons travelled to Marsa Shagra with the JBL Research Team in order to carry out seawater research under scientific guidance right in the reef. Shark researcher, Dr. Erich Ritter, came from Florida expressly to give a lecture on the body language of sharks to all of the participants. The following day, the scuba divers were able to try out what they had learned with oceanic whitetip sharks right on the Elphinstone Reef.

The water analyses were aimed at determining whether marine water parameters differ in different areas, among other things. Water samples were taken from near the beach, at the surface and at a depth of 30 metres, as well as from reefs that were distant from the coast, and analysed for this purpose.



Marsa Shagra/Red Sea Salt water

	Inner reef	Outer Reef	Dolphinhouse
Temp. (°C)	25,3	24,8	24,7
pH	8,10	8,17	8,13
KH (°dKH)	8	8	8
Ca (mg/l)	448	467	457
Mg (mg/l)	1360	1281	1277
O_2 (mg/l)	8	8	8

South Africa & Lake Malawi

The southern most coral reef of the world lies off the east coast of South Africa. We found the water temperature here to be 17 °C, which is lower than the minimum temperature indicated for coral reefs in the literature (20 °C). The world's most famous shark researchers were there with us, so that we were able to listen to personal lectures on the various species of sharks by Dr. Erich Ritter, Andre Hartmann and Andy Cobb. We were then able to see all of these sharks in their natural surroundings during our dives and from a cage. This is where the friendship with the shark protection organisation, SharkProject, began, which JBL has been supporting ever since.

While at Lake Malawi, our primary goal was to do water analyses, while our second goal was to do feeding experiments right under the water and on cichlids that had just been caught in Stuart Grant's export station. We found that grazing cichlids such as Pseudotropheus prefer carnivorous food if it is offered to them. It was also interesting to discover that green algae are only found down to a depth of 50 cm and that blue-green algae and diatomes predominate below this, so that they form the primary food of grazing cichlids.

Air temperatures Malawi

	08:00	12:00	18:00	20:00	0:00
35° C					
32° C					
29° C					
26° C					
23° C					
20° C					

Humidity Malawi

	08:00	12:00	18:00	20:00	0:00
55%					
50%					
45%					
40%					
35%					
30%					

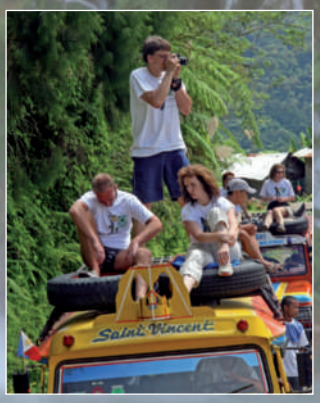
Light Malawi 12:00

Light intensity (Lux)	125.600
UV-A	2,01
UV-B	0,48

Expedition 2007

Negros/Philippines

The friendship with Georg, the owner of two lodges in the Philippines, made it possible to keep the price of the workshop below € 1,000. 82 participants analysed, observed and experimented in the ocean and the rain forest of the island of Negros for one week. The trip into the rain forest, which fully lived up to its name, was an unforgettable experience for several participants. A normal tropical rain shower caused the water levels of the streams to rise so high that bridges were under water and our group prevented from traveling for a number of hours.
The underwater fauna off of Apo Island was especially impressive. The coral formations and colours were among the most beautiful that even the most experienced divers had ever seen.



Air temperatures Negros

	08:00	12:00	18:00	20:00	0:00
35° C					
32° C		●			
29° C					
26° C					
23° C					
20° C					

Humidity Negros

	08:00	12:00	18:00	20:00	0:00
75%		●			
70%					
65%					
60%					
55%					
50%					

Amazonia & Pantanal

We rode on the Rio Negro, the black water river with clear tributaries, for one week before we reached where it flows into the Amazon River at Manaus. We examined the black water, which is hostile to life and had an immeasurable hardness and a pH level of 4. In this water, we were barely able to catch any plankton with our plankton net. Only the river dolphins and the red neon appeared to feel comfortable here.

We left the cloudy white water of the Amazon and the tea-coloured water of the Rio Negro behind us and continued on to the clear water rivers of the Pantanal. Here, we were able to observe fish with a visibility of over 50 m under water, as though they were in an aquarium. Encounters with piranhas and freshwater rays were definitely highlights.

Air temperatures Amazon basin

	08:00	12:00	18:00	20:00	0:00
35° C					
32° C					
29° C					
26° C					
23° C					
20° C					

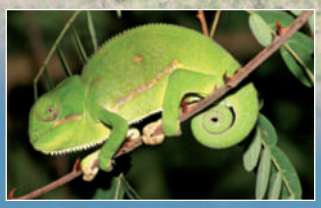
Humidity Amazon basin

	08:00	12:00	18:00	20:00	0:00
90%					
85%					
80%					
75%					
70%					
65%					

Light Amazon basin 12:00

Light intensity (Lux)	113.600
UV-A	2,2
UV-B	0,27

Expedition 2010 Tanzania, Zanzibar & Lake Tanganyika



76 participants took the opportunity to get to know very diverse African habitats in 13 days. Rain forest, tropical dry forest, savannah, steppe, mountains, streams and lakes, and, as a grand finale, Lake Tanganyika were all on the program. Cichlid specialist, Dr. Stefan Koblmüller, and some other participants were able to catch a species of cichlid that was considered extinct alive in a stream near Mt. Meru and identify it. Terrarium enthusiasts, in particular, were able to measure the surface temperature of rocks and wood with laser metres for the first time in order to offer animals optimal conditions in captivity.

Lake Tanganyika, which already presented almost all of the cichlids known from aquariums near the shore, was definitely a highlight. The scuba divers then also had an opportunity to observe Cyphotilapia frontosa in their natural habitat at a depth of 20 to 45 m. The logistics for this workshop were a real challenge: They ranged from organising an airplane that all of the participants and their luggage could fit into (freshly bought, unpainted Boing of Air Tanzania) to the transport of compressed air cylinders by truck across Tanzania from Mount Kilimanjaro to Lake Tanganyika.

Air temperatures Arusha

	08:00	12:00	18:00	20:00	0:00
30° C					
28° C					
26° C					
24° C					
22° C					
20° C					

Humidity Arusha

	08:00	12:00	18:00	20:00	0:00
75%					
70%					
65%					
60%					
55%					
50%					

Light Arusha 12:00

Light intensity (Lux)	104.000

Surface temperatures 15:00

Soil	Stone	Wood
36° C	35° C	30° C

Central America & Galapagos

In Costa Rica, we had to learn that it was more difficult to find the famous red-eyed frogs than we had imagined. We were on the exact river where they lived, we could hear them, but we couldn't find them, not even after many hours of search by night!

We dove deep into the Mexican cenotes in search of the Mexican blind cavefish. The longest cave system in the world with a length of several hundred kilometres belonged to the most fascinating biotopes we had ever seen.

We were able to find shrimp in Lake Nicaragua, even though they weren't as pretty as the ones in Sulawesi.

Our trip culminated with an absolute highlight: the Galapagos Islands in the Pacific. These extraordinary islands, which had already inspired Charles Darwin to come up with his theory of evolution, offered a true emotional adventure for every nature enthusiast. All the way from observing the giant tortoises, to unique marine iguanas and to hammerhead sharks and mantas, our days were filled with unmatched experiences of nature. Even if they weren't all truly relevant for aquarium keeping,

Air temperatures Costa Rica

	08:00	12:00	18:00	20:00	0:00
35° C					
32° C					
29° C					
26° C					
23° C					
20° C					

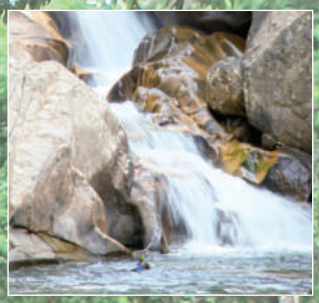
Humidity Costa Rica

	08:00	12:00	18:00	20:00	0:00
90%					
85%					
80%					
75%					
70%					
65%					

Lightt Costa Rica 12:00

Light intensity (Lux)	108.000
UV-A	
UV-B	0,48






70 nature lovers had 10 days to explore the region around Nha Trang in the rainforest, the desert and the offshore coral reef.

Everyone was thrilled by the clear mountain rivers with gobies and loaches, the waterfalls with hillstream loaches and the jungles with many interesting snakes. More dangerous were the slippery stones in the rivers they had to cross in order to penetrate deeper into the wilds. But it was worth it. They were rewarded with intensive natural experiences, extensive biotope data and for the first time water current measurements.











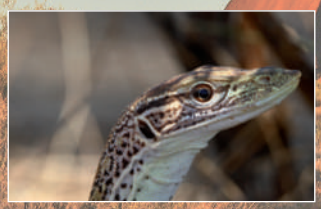
Air temperatures Nha Trang

	08:00	12:00	18:00	20:00	0:00
35° C					
32° C					
29° C					
26° C					
23° C					
20° C					

Humidity Nha Trang

	08:00	12:00	18:00	20:00	0:00
75%					
70%					
65%					
60%					
55%					
50%					

California, South Seas & Australia



The 14 members of the JBL research team went round the world in 18 days. We started in California, continued our flight to French Polynesia and then reached Australia. We flew back to Germany via Dubai.

Catalina Island/California
There is a small paradise just off the coast of Los Angeles. The Pacific around Catalina Island is crystal-clear and contains the most beautiful fish species in the cold Pacific. We wanted to observe the bright orange Garibaldi damselfish and the orange-blue Catalina goby which grow to a length of only a few centimetres.

Moorea/ French Polynesia
Feeding trials in the extremely clear water of the South Seas were on the agenda. After measuring the water values we went to the reef 20 m into the depth outside of the lagoon. ALL the fish species present, even the shy butterflyfish species, gladly accepted the JBL MariPearls offered. The behaviour of the reef and lemon sharks there was interesting. They could smell the food, but couldn't see it because of its small size.

Great Barrier Reef/Australia – East Coast
A short trip to the world's longest coral reef should provide us with information on the water values, which we wanted to compare with the values in California and the South Seas. Shortly after our departure the Barrier Reef was hit by a disastrous water heating (not caused by the El Niño phenomenon) with the effect that 2/3 of all corals died off. Seems to be easy for us to demolish our planet....

Atherton Tablelands/Australia – North East
In the tropical rainforests we studied the biotopes of the rivers, streams and forests. The "bee shrimps" in a stream and the variety of the lizards in the jungle were of particular interest.

Outback/Australia – Central
Australia's red heart welcomed us with millions of flies. But the diversity of the landscape with dry areas, waters in canyons (gorges) and crystal-clear streams was unbelievable. Our destination was the biotopes of the rainbow fish and many lizard species.

Darwin-Litchfield/Australia – The Tropical North
The nature reserves in the north, which are well-known for their large saltwater crocodiles, marked the end of the Australia trip. In crocodile-free waters we were able to collect a lot of biotope data, but also do some interesting underwater feeding.

Air temperatures Austr. rainforest

	08:00	12:00	18:00	20:00	0:00
30° C					
28° C					
26° C					
24° C					
22° C					
20° C					

Humidity Austr. rainforest

	08:00	12:00	18:00	20:00	0:00
65%					
60%					
55%					
50%					
45%					
40%					

Light Austr. rainforest 12:00

Light intensity (Lux)	119.500
UV-A	0,88
UV-B	0,32

Surface temperatures 15:00

Soil	Stone	Wood
27° C	35° C	28° C

Air temperatures Austr. Outback

	08:00	12:00	18:00	20:00	0:00
38° C					
36° C					
34° C					
32° C					
30° C					
28° C					

Humidity Austr. Outback

	08:00	12:00	18:00	20:00	0:00
35%					
30%					
25%					
20%					
15%					
10%					

Light Austr. Outback 12:00

Light intensity (Lux)	150.000
UV-A	2,05
UV-B	0,53

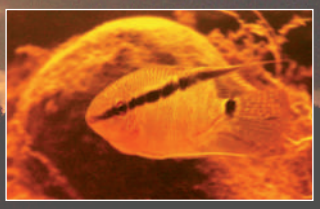
Surface temperatures 15:00

Soil	Stone	Wood
58° C	57° C	66° C

In April the 50 team members went first to the Orinoco Delta and afterwards to the famous table-top mountains in the south of Venezuela.

In April the 50 team members went first to the Orinoco Delta and afterwards to the famous table-top mountains in the south of Venezuela.

In the Orinoco Delta our camp was a simple jungle lodge on piles in the river. We spent the night in hammocks under mosquito nets and took daily boat trips to make studies of various biotopes. We were amazed by the way soft water plecos and algaevorous snails, which need marine water to reproduce, cohabited. Hugely impressive was the sheer range of animal variety, from piranhas to anacondas. We spent the days until late into the night out in small groups, looking for animals and gathering measurement data. Even deep mud holes didn't stop us from penetrating any waters where we could expect to meet some interesting fish species.
We deep-flew into the south to the table-top mountains in small Cessnas, with doors that didn't close properly and instruments that didn't display anything. From Canaima we went far up the river Carrao in longboats. Unfortunately the water level was too low for an onward journey to the Salto Angel, the world's highest waterfall. Sightseeing flights gave us the opportunity to experience the impressive waterfall from a height of 1000 m. The coffee brown but clear blackwater of the Canaima lagoon and the nearby rivers offered intensive snorkeling opportunities for everyone to observe tetras, cichlids and catfish under water. The rainforest between the majestic table-top mountains was full of lizards, snakes and poison dart frogs (D. leucomelas).



Air temperatures Orinoco

	08:00	12:00	18:00	20:00	0:00
38° C					
36° C					
34° C					
32° C					
30° C					
28° C					

Humidity Orinoco

	08:00	12:00	18:00	20:00	0:00
75%					
70%					
65%					
60%					
55%					
50%					

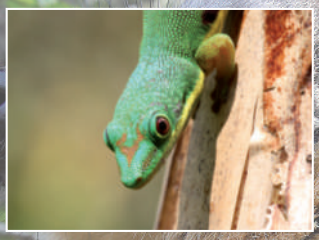
Shark Workshop 2018

Eleuthera/Bahamas

This workshop gave EVERYONE taking part some of the most memorable experiences of their lives and for many of us, this is saying a lot! We have all seen sharks in the past: sometimes one, sometimes a few of them and mostly more than two meters away. But to snorkel and dive between 20 sharks, to be jostled and pushed aside by them, was incredible.

It started with our first dive or snorkel with the sharks (Caribbean reef sharks), before we learned something about the body language of sharks from the shark expert Dr. Erich Ritter that evening. Erich showed us that a slightly opened mouth indicates that the shark is relaxed, how we can tell which direction the shark is going to take by the lowering of a pectoral fin and how to maintain eye contact to the shark, so that the shark also maintains eye contact to us. During the following encounters with the 20 plus sharks present, we gradually came to understand more and more about their body language and to interact with them. When we fed them we learnt that there is no bloodlust between sharks – just jealousy about food. They are totally indifferent to human blood – but not to fish blood. Between shark interactions, free diving world record holder Christian Redl taught us how to double the time we could hold our breath to interact even better with the shy water dwellers. We noticed how the sharks were highly interested in electronic devices like underwater flash units and GoPro cameras (electromagnetic impulses) and how they perceived us only as obstacles in their way. While snorkelling we learned to maintain a vertical position in the water, in order to be more mobile around the body axis and to keep an eye on the sharks. This is also the most important preventive measure for an unexpected shark encounter in the sea. Accidents do not happen because the sharks are dangerous, but because of the given circumstances.

Expedition 2018 **Madagascar**



Due to their size of over 10 meters whale sharks aren't exactly the ideal aquarium inhabitants. This doesn't stop more and more public aquariums worldwide, from Atlanta/USA to Taiwan, from keeping whale sharks in aquariums. The JBL expedition team travelled to the north of Madagascar to see the behaviour of whale sharks in the wild and came to the conclusion that while their nutrition in the aquarium may not be a problem, the aquariums, no matter how big they are, always constitute a tiny prison space for them.

Then we went to the central rainforests of Madagascar to take a closer look at the biotopes of the legendary chameleons, day geckos and frogs. The most important finding was that the humidity and temperatures vary enormously: from 29.4 °C with 59 % humidity at noon at 12:30 to 19.8 °C with 98 % at 21:30 in the evening. The habitats with these strongly fluctuating parameters were apparently ideal for an unbelievable abundance of animals. Accompanied by the screaming of the lemurs, the participants found a lot of frog and chameleon species, all the day gecko species living there, turtles and two snake species. We actually found the standard guides of the national parks more a hindrance than a help, as they were written for tourists and were full of tours through the jungle in search of prosimians, or sensationalist attempts to create attractions out of chameleons which had been relocated there for the tourists.

In Mauritius, we focussed on marine habitats. A comparison with Madagascar showed a lower biodiversity and also a scarcity of corals which could not be explained by the marine water parameters: Only the magnesium content of the marine water, at 1220 mg/l, was slightly lower than that of Madagascar (1340 mg/l) or the Seychelles (1300-1400 mg/l). The two wrecks Emily and Water Lilly, which sank in 1981/82 and are now resting on sandy soil at a depth of 25 m, also showed a correspondingly low growth of stony corals. The Acropora corals growing on the ship's wall had grown to only 40 cm in the past 37 years. In other places and in the aquarium the growth is higher to the factor of 10!

At the end of the JBL expedition, the team travelled to the Seychelles, just below the equator. Above water the islands looked absolutely fantastic, but underwater they were nothing special. Although the coral growth and biodiversity were significantly higher than in Mauritius, they lie nowhere near the diversity level of the Maldives, which lie only 2000 km northeast in the same ocean.

This JBL expedition made it clear that marine diversity cannot be determined by water values, it depends very much on geographical conditions. The Caribbean is clearly species-poor, the Indo-Pacific region has the most species in the world, and the extensive regions of the Pacific (South Sea) are very species-poor.

Mauritius

Seychelles

Air temperatures Madagascar Andasibe

	08:00	12:00	18:00	20:00	0:00
30° C					
28° C					
26° C					
24° C					
22° C					
20° C					

Humidity Madagascar Andasibe

	08:00	12:00	18:00	20:00	0:00
95%					
85%					
75%					
65%					
55%					
45%					

Light Madagascar 12:00

UV-A	2,16
UV-B	0,65

Surface temperatures 15:00

Soil	Stone	Wood
23° C	28° C	23° C

Expedition 2019

Japan

In October 2019 40 participants will probably join the JBL expedition with the most variety of all. After a short sightseeing tour in Tokyo we will go to the northwest of the main island Honshu, to visit the koi breeders in the mountains of the prefecture Niigata. Thanks to our cordial relations with some of the most famous koi breeders our team members will have the opportunity to measure the water values in their facilities and to ask the breeders questions.

To get an impression of Japanese culture we will visit Nikko. We'll see some very old, almost dilapidated temple complexes and some very well preserved ones too, as well as some Shinto shrines and a tea ceremony.

Worth seeing are also the Kegon Waterfalls and a mountain river, which might attract any group members insensitive to the cold for a snorkeling observation of native fish and invertebrates.

For the next destination we will be flying from Tokyo to reach the Ryukyu Islands about 2,000 km to the south. Situated around the island Ishigaki there are coral reefs with an astonishing diversity. There we will snorkel or dive to carry out marine water analyses and light measurements under water. Along with interesting observations of the coral growth we will be able to observe a gratifying number of sea snakes and mantas.

There are hardly any roads in the neighbouring island Iriomote but all the more untouched rainforest with crystal-clear small rivers. There we will work our way up from the brackish water area of the mangroves with mudskippers and puffer fish through a river with about 23 °C water temperature to a waterfall. In doing that we will go snorkeling to observe beautiful goby species and lots of shrimps. In the surrounding rainforest terrarium enthusiasts will get their money's worth, and be able to watch lizards, frogs, interesting insects and spiders.
After two days our two groups of 16 will swap islands, so that there are never more than 16 participants (usually working in smaller groups) in one place (or diving boat).

Expedition 2021

Preview

Colombia

To see altum angelfish and cardinal tetras in clearwater

Clear jungle rivers, many interesting fish species, indigenous villages and aquatic research are the highlights of this exciting JBL expedition at the end of January - beginning of February 2021 for about € 1900 (incl. flights). For ten days four boats, each with teams of 8 people on board, will leave Inirida to visit various habitats.

Before we take a smaller plane to the east of Colombia to the Venezuelan border, we will spend the night in Bogota, the capital of Colombia. The next morning we'll all fly to Puerto Inirida in the lowland rainforest.

We'll be going in boats to regions 30 minutes to 3 hours away in the middle of the rain forest. Rivers such as the Rio Inirida or the Rio Atabapo flow towards Orinoco, forwarding very clear blackwater and forming the habitat of huge numbers of ornamental fish species familiar to us from our aquariums.
We'll be staying the night with indigenous people, who'll also be preparing our meals. The food is sure to be tasty and inanimate! There won't be a McDonalds anywhere! We will be fully integrated into the village life of the locals and we'll receive an intimate knowledge of their lifestyles.
A very special habitat will be the large boulders in the Rio Atabapo. Dr. Wolfgang Staeck found very beautiful L number catfish species during his trip there.
In other biotopes we'll find banded cichlids (Heros species), dwarf cichlids (Apistogramma species), altum angelfish (Pterophyllum altum), cardinal tetras (Paracheirodon axelrodi), flag cichlids (Mesonauta insignis), Crenicichla species and many more. Dr. Wolfgang Staeck will be present on site and help us determine them.
Terrarium animal lovers will also get their heart's desire. The rainforests along the riverbank are home to countless interesting terrarium animals, from tarantulas to lizards and snakes. In the waters live caimans and turtles. One of our expedition tasks will be to determine the biotope data.

JBL

JBL PRODUCTS

VORSPRUNG
DURCH FORSCHUNG
AHEAD THROUGH RESEARCH

JBL NovoFil

Red blood worms for fastidious aquarium fish

- Alternative to live and frozen food: supplementary diet for tropical freshwater fish and turtles
- Nutritious and easy to digest: ideal feeding conditions for fish species from 5 to 20 cm in all water layers
- Better digestibility leads to reduced algae growth and better water quality
- Vacuum freeze-drying ensures that important nutrients are retained in the dried feeder animals
- Can be stored for 3 years unopened, use within 4 months after opening

Art. no.	Size	Weight
30260	100 ml	8 g
30270	250 ml	20 g

JBL NovoFex

Tubifex cubes, treats for aquarium fish

- Alternative to live and frozen food: treats for tropical freshwater fish and turtles
- Ideal feeding conditions for turtles and fish species from 5 to 20 cm in all water layers
- Better digestibility leads to reduced algae growth and better water quality
- Gentle vacuum freeze-drying to retain the valuable nutrients
- Can be stored for 3 years unopened, use within 4 months after opening

Art. no.	Size	Weight
30620	100 ml	10 g
30630	250 ml	30 g

JBL NovoDaph

Water fleas, treats for aquarium fish

- Alternative to living and frozen food: treats for tropical freshwater fish and turtles
- Ideal feeding conditions for fish species 3 - 15 cm in all water layers with lots of fibres
- Better digestibility leads to reduced algae growth and better water quality
- Gentle vacuum freeze-drying to retain the valuable nutrients
- Can be stored for 3 years unopened, use within 4 months after opening.

Art. no.	Size	Weight
30700	100 ml	9 g

JBL NovoLotl M

Complete food for small Axolotl

- Complete nutrition and ideal growth for Axolotl, newts and African dwarf frogs from 8-20 cm
- What makes it special: it complements the natural nutrition with fish meat of freshwater fish, amphipods and shrimps
- The handpicked ingredients improve digestion and therefore result in less water contamination (= fewer algae)
- Axolotl find their food by their sense of smell. That's why the smell of the natural ingredients is crucial
- Can be stored for 3 years unopened, use within 4 months after opening. 250ml supply food for a 100l aquarium for 50 days

Art. no.	Size	Weight
30354	250 ml	150 g

JBL NovoLotl XL

Complete food for large Axolotl

- Complete nutrition and ideal growth for Axolotl and newts from 18 cm through 5 mm granulates
- What makes it special: it complements the natural nutrition with fish meat of freshwater fish, amphipods and shrimps
- The handpicked ingredients improve digestion and therefore result in less water contamination (= fewer algae)
- Axolotl find their food by their sense of smell. That's why the smell of the natural ingredients is crucial
- Can be stored for 3 years unopened, use within 4 months after opening. 250ml supply food for a 100l aquarium for 50 days

Art. no.	Size	Weight
30359	250 ml	150 g

JBL PlanktonPur S

Treats for small aquarium fish

- Varied diet: treats for tropical fresh and saltwater fish and shrimps. Fresh and pure plankton.
- Ideal colouring thanks to natural astaxanthin: natural food from arctic waters for fish from 2 to 6 cm in size
- Better digestibility leads to reduced algae growth and better water quality
- Natural food made of 100 % plankton
- Dosage: 2 g sticks supply an aquarium of up to 200 l. Unopened the sticks can be kept for 3 years

Art. no.	Size	Weight
30031	8 Pieces	2 g
30033	8 Pieces	5 g

JBL PlanktonPur M

Treats for large aquarium fish

- Varied diet: treats for tropical fresh and saltwater fish and shrimps. Fresh and pure plankton.
- Ideal colouring thanks to natural astaxanthin: natural food from arctic waters for fish from 4 to 14 cm in size
- Better digestibility leads to reduced algae growth and better water quality
- Natural food made of 100 % plankton
- Dosage: 2 g sticks supply an aquarium of up to 200 l. Unopened the sticks can be kept for 3 years.

Art. no.	Size	Weight
30035	8 Pieces	2 g
30037	8 Pieces	5 g

JBL Food Clip

Universal clip for food and salad leaves

- Ideal for green food such as salad leaves: universal clip with suction holder and flexible clip
- Press suction holder against the inside of the pane and insert food (e.g. lettuce leaf) to clamp
- Flexible clip: rotates in all directions, no drifting away of food, fish can be viewed while they are feeding
- Suitable for freshwater, saltwater and terrarium tanks
- Package contents: 2 universal clips with suction holders

Art. no. **63163**

Content 2 Pieces

JBL Catappa XL

Tropical almond leaves for freshwater aquariums

- Caring for fish and invertebrates in freshwater aquariums with conditions close to natural living environment
- Natural effect of tropical almond leaves: promotes well-being, vitality and spawning readiness
- Promotes well-being, vitality and spawning readiness. Tanning agents prevent diseases.
- Harvested from the tree, cleaned, smoothed and sun-dried
- 1 leave/50 – 100 l water. Active substances will be completely released after 1 – 3 weeks. Contents: 10 leaves (each approx. 23 cm)

Art. no. **25198**

Range 1000 l

Content 10 Pieces

JBL Nano-Catappa

Tropical almond leaves for small freshwater aquariums

- Natural care for fish and invertebrates in freshwater aquariums
- Natural effect of tropical almond leaves: promotes well-being, vitality and spawning readiness
- Promotes well-being, vitality and spawning readiness. Tanning agents prevent diseases.
- Directly harvested from the tree, cleaned, smoothed and sun-dried
- Use: 1 leaf/15 – 30 l water. Active substances are released completely after 1 – 3 weeks

Art. no. **25199**

Range 300 l

Content 10 Pieces

JBL StartKit

Complete water treatment for freshwater aquariums

- Add the water conditioner to the aquarium water, continue with the bacteria starter 15 minutes later. Then insert fish
- Water conditioner removes harmful substances from tap water and starter adds pollutant-decomposing bacteria
- Without bacteria starter an accumulation of toxic ammonia and nitrite occurs
- Ideal for freshwater aquariums with fish, shrimps and turtles
- Contents: 1 x 15ml water conditioner JBL Biotopol and 1 x 15ml bacteria starter JBL Denitrol for 10-60 l aquarium water

Art. no. **23010**

Content 2 x 15 ml

JBL ProScan

Water test with analysis via smartphone

- Water analysis and diagnosis via smartphone: easy control of the values. GH, KH, pH, NO2, NO3, Cl and CO2 calculation
- The new generation of analysis: download app, insert strip, position on colour chart, scan, read values
- Fast diagnosis – precise results: test value results are additionally evaluated (good/medium/poor)
- Compatible with iPhone and iPad: iOS 7.0 or higher, Android 4.0 or higher and a camera with autofocus needed
- Contents: 1 pack ProScan with 24 water analysis strips, 1 colour chart, 1 ProScan app to download free of charge

Art. no. **25420**

Content 24 Tests

JBL ProScan Recharge

Refill test strips for analysis via smartphone

- Water analysis and diagnosis via smartphone: easy control of the values. GH, KH, pH, NO2, NO3, Cl and CO2 calculation
- The new generation of analysis: download app, insert test strip, position strip on colour chart, scan, read values
- Fast diagnosis – precise results: test value results are additionally evaluated (good/medium/poor)
- Compatible with iPhone and iPad: iOS 5.0 or higher, Android 4.0 or higher and a camera with autofocus needed
- Contents: 1 pack ProScan Recharge with 24 water analysis strips

Art. no. **25421**

Content 24 Tests

JBL AquaEx Set 10-35

Gravel cleaner for nano aquariums

- Small but powerful gravel cleaner for the siphoning of waste in small aquariums
- Briefly suck in down the hose, water flows into bucket. Immerse gravel cleaner into substrate, suction removes waste
- The square cross section also enables you to siphon waste in the aquarium corners
- Removable protective sieve to prevent plants, shrimps and fish from being sucked in
- Package contents: 1 gravel cleaner Aqua Ex Set. Ø 35 mm, 12.5 cm height, incl. 1.5 m hose (9/12 mm)

Art. no. **61418**

Length 125 mm

Ø 35 mm

JBL AquaEX Set 20-45

Gravel cleaner for aquariums with 20-45 cm in height

- Siphons food and plant remains (sludge) from the aquarium bottom. Convenient: with automatic suction device
- Easy to install: attach to the bucket, activate with shaking movements. Push gravel cleaner into the ground
- Automatic suction device, cleans places which are difficult to reach: variable adjustment of suction strength, internal diameter 40 mm
- Protective sieve to prevent plants and fish from being sucked in
- Package contents: 1 Aqua Ex Set. Size: 20 - 45 cm, Ø 40 mm, incl. 2 m hose (12/16 mm), 2 hose clips, cockstop

Art. no.	Length	Ø
61409	330 mm	40 mm

JBL WishWash

Cleaning cloth and sponge

- Crystal-clear aquarium and terrarium panes: cleaning cloth and sponge to remove algae and dirt
- Convenient to use: sponge for the removal of dirt at the inside of the pane. Cloth to clean the outside
- Soaks up the whipped off dirt: no spreading of dirt in the water
- Free of chemicals, clean sponge/cloth with water up to 60°C.
- Package contents: 1 x cleaning cloth and sponge. Sponge size approx. 100 x 100 x 25 mm, cloth size approx. 400 x 510 mm

Art. no.	cloth	sponge
61526	51x40 cm	10x10 cm

JBL Spongi

Cleaning sponge for aquariums and terrariums

- Clean aquarium or terrarium: robust cleaning sponge
- Easy to use: move the sponge over the inner surface of the aquarium pane
- Cleans thoroughly: residue-free sponge
- Neutral material - adds no pollutants to the water
- Dimensions: 11.5 x 9 cm

Art. no.	Width	Length
61380	90 mm	115 mm

JBL ProScape Cleaning Glove

Aquarium cleaning glove

- Removal of algae growth and deposits: aquarium glove with metal threads for the cleaning of glass panes and objects
- Easy handling: put on glove, clean by rubbing on the desired area
- Cleans all corners, technical items and pumps perfectly; easy removal of algae
- Care of glove: rinse in lukewarm water and dry out of direct sunlight
- Package contents: 1x aquarium glove

Art. no.		Content
61379		1 Piece

NEW

JBL LED SOLAR NATUR

High-performance LED light for freshwater aquariums

- Max. light efficiency f. beautiful aquatic plants: extremely high photos. active radiation (PAR) - more than 200 µM/s/m2
- Plug & play: clip light in tube holder or set it up, connect, switch on/dim via remote control
- Evenly distributed warm white and cool white LEDs for 3 types of light climate: warm white, daylight white, cool white
- Expandable through WiFi control via smartphone with preset biotope-compatible or individual light controls
- Incl. water-prot. light, remote control, driver, power supply unit, connection cable, holding brackets, adapter f. T5/T8

Art. no.	Length	Performance
61902	438 mm	22 W
61903	549 mm	24 W
61904	742 mm	37 W
61905	849 mm	44 W
61906	1047 mm	57 W
61907	1149 mm	59 W
61908	1449 mm	68 W

NEW

JBL LED SOLAR EFFECT

LED effect light as supplement to JBL LED SOLAR Natur

- Special light with RGB LEDs to create colour effects, ideal as replacement for the second coloured fluorescent tube
- Connect to the enclosed cable switch to your existing JBL LED SOLAR Natur and adjust using its remote control.
- For more dramatic simulations of sunrise and sunset colours, as well as weather situations, such as thunderstorms
- The RGB LEDs can create red, green, blue and mixed colours, selectable via remote control of the JBL LED SOLAR Natur
- Incl. LED RGB light (IP67), cable switch, holding brackets for top assembly & end caps for installation in tube sockets

Art. no.	Length	Performance
61911	438 mm	8 W
61912	549 mm	9 W
61913	742 mm	13 W
61914	849 mm	15 W
61915	1047 mm	16 W
61916	1149 mm	19 W
61917	1449 mm	20 W

NEW

JBL SOLAR Control WiFi

WiFi control unit for JBL LED SOLAR lights

- To set JBL LED SOLAR Natur & Effect with WiFi using a mobile phone: biotope data, lightning storm, sunrise and sunset
- Simple operation: replace existing IR receiver with the JBL WiFi Control and adjust the effects you want with the app
- 5 programmes + man. setting (biotope, aquascaping, goldfish, community aquarium, each progr. with acclimatis. setting)
- Biotope data contains dry and wet season, degree of cloudiness, lightning storm, as well as sunrise and sunset
- Contains: WiFi control unit to connect to the JBL LED SOLAR system for 2 lights (1x Natur & 1x Effect)

Art. no.	For	For
61918	Effect	Natur

JBL LED SOLAR Hanging

Rope hanging fixture for JBL LED SOLAR lights

- For suspending a JBL LED SOLAR light (Natur or Effect) from the ceiling
- Thread stainless steel rope through JBL LED light, attach holders to the ceiling and hang rope at the length you wish
- Elegant (stainless) steel ropes in 150 cm length each; can be shortened
- Easy mounting within minutes by simple attachment to the light and to the ceiling thanks to the special cable fixture
- Package contents: 2 dowels & 2 screws with 2 special fixtures (for ceiling), 2x 150 cm stainless steel rope

Art. no.	For	For
61919	Effect	Natur

JBL Start Solar

Starter for T8 fluorescent tubes

- Starter to turn on fluorescent tubes in aquariums/terrariums
- Easy to fit: put the starter with half a turn into the socket until it snaps into place
- For the individual operation of fluorescent tubes with T8 socket. Suitable for fluorescent tubes from 4 to 80 watts
- Not suitable for fluorescent tubes switched in tandem
- Dimensions (L/H/W): 96/140/20 mm

Art. no.		For
61701		T-8

JBL ProTemp S 25

Safety heater-stat with protective basket

- Heating for an ideal temperature in aquariums with 10 - 50 l content (30 - 60 cm length)
- Insert the heater into the protective basket, preselect temperature, immerse in the aquarium, attach with suction cups
- Temperature setting 20-34°C, control accuracy +/-0.5°C. Temperature transfer through star-shaped ceramic heating element
- TÜV tested, watertight, safety quartz glass, protection screen. With dry-running protection against electrical accidents
- 2 years guarantee (+2 years upon registration of the product)

Art. no.	For	Length
60421	10 - 50 l	21,5 cm

JBL ProTemp S 50

Safety heater-stat with protective basket

- Heating for an ideal temperature in aquariums with 30 - 80 l content (40 – 80 cm length)
- Insert the heater into the protective basket, preselect temperature, immerse in the aquarium, attach with suction cups
- Temperature setting 20-34°C, control accuracy +/-0.5°C. Temperature transfer through star-shaped ceramic heating element
- TÜV tested, watertight, safety quartz glass, protection screen. With dry-running protection against electrical accidents
- 2 years guarantee (+2 years upon registration of the product)

Art. no.	For	Length
60422	30 - 80 l	21,5 cm

JBL ProTemp S 100

Safety heater-stat with protective basket

- Heating for an optimal temperature in aquariums with 50 to 160 l content (60 – 100 cm length)
- Insert the heater into protective basket, preselect the temperature, immerse in the aquarium, attach with suction cups
- Temperature setting 20-34°C, control accuracy +/-0.5°C. Temperature transfer through star-shaped ceramic heating element
- TÜV tested, watertight, safety quartz glass, protection screen. With dry-running protection against electrical accidents
- 2 years guarantee (+2 years upon registration of the product)

Art. no.	For	Length
60423	50-160 l	27,5 cm

JBL ProTemp S 150

Safety heater-stat with protective basket

- Heating for an ideal temperature in aquariums with 90 to 200 l content (80 – 100 cm length)
- Insert the heater into protective basket, preselect the temperature, immerse in the aquarium, attach with suction cups
- Temperature setting 20-34°C, control accuracy +/-0.5°C. Temperature transfer through star-shaped ceramic heating element
- TÜV tested, watertight, unbreakable safety quartz glass, protective basket. Autom. switch-off when sinking water level
- 2 years guarantee (+2 years upon registration of the product)

Art. no.	For	Length
60424	90-200 l	27,5 cm

JBL ProTemp S 200

Safety heater-stat with protective basket

- Heating for an ideal temperature in aquariums with 100 - 300 l content (80 – 120 cm length)
- Insert the heater into protective basket, preselect the temperature, immerse in the aquarium, attach with suction cups
- Temperature setting 20-34°C, control accuracy +/-0.5°C. Temperature transfer through star-shaped ceramic heating element
- TÜV tested, watertight, safety quartz glass, protection screen. With dry-running protection against electrical accidents
- 2 years guarantee (+2 years upon registration of the product)

Art. no.	For	Length
60425	100-300 l	37,5 cm

JBL ProTemp S 300

Safety heater-stat with protective basket

- Heating for an ideal temperature in aquariums with 160 to 400 l content (100 – 120 cm length)
- Insert the heater into protective basket, preselect the temperature, immerse in the aquarium, attach with suction cups
- Temperature setting 20-34°C, control accuracy +/-0.5°C. Temperature transfer through star-shaped ceramic heating element
- TÜV tested, watertight, safety quartz glass, protection screen. With dry-running protection against electrical accidents
- 2 years guarantee (+2 years upon registration of the product)

Art. no.	For	Length
60426	160-400 l	37,5 cm

JBL CristalProfi e402 greenline

External filter for aquariums from 40 - 120 litres

- External filter for healthy aquarium water: closed water circuit for aquariums with 40 – 120 litres (40 – 80 cm)
- Fully equipped and ready to connect: built-in quick-start priming button, filter start without manual priming
- Patented system: high biol. filter perf., 100% more pre-filter surface, exchangeable filter media. Guarantee: 2+2 years
- TÜV tested, safe & energy-efficient: 4W power consumption - tremendous energy savings. Dimensions (L/H/W): 18x20x29.5 cm
- Incl. hoses & pipes 12/16 mm, intake strainer, elbow, suction cups, filter media (bio-filter balls and bio-filter foam)

Art. no.	Watt	Performance
60280	4 W	450 l/h

JBL CristalProfi e702 greenline

External filter for aquariums from 60 - 200 litres

- External filter for healthy aquarium water: closed water circuit for aquariums with 60 – 200 litres (60 – 100 cm)
- Fully equipped and ready to connect: built-in quick-start priming button, filter start without manual priming
- Patented system: high biological filter performance, 100 % more pre-filter surface, exchangeable filter media
- TÜV tested, safe, energy-efficient: 9 W-31% less power consumption. Dimensions (LxWxH): 18x20x35cm. Guarantee: 2+2 years
- Incl. hoses & pipes 12/16 mm, intake strainer, elbow, suction cups, filter media (bio-filter balls and bio-filter foam)

Art. no.	Watt	Performance
60281	9 W	700 l/h

JBL CristalProfi e902 greenline

External filter for aquariums from 90 - 300 litres

- External filter for healthy aquarium water: closed water circuit for aquariums with 90 – 300 litres (80 – 120 cm)
- Fully equipped and ready to connect: built-in quick-start priming button, filter start without manual priming
- Patented system: high biological filter performance, 100 % more pre-filter surface, exchangeable filter media
- TÜV tested, safe, energy-efficient: 11W - 27% less power consumption. Dimens. (LxWxH): 18x20x40cm. Guarantee: 2+2 years
- Incl. hoses & pipes 12/16 mm, intake strainer, elbow, suction cups, filter media (bio-filter balls and bio-filter foam)

Art. no.	Watt	Performance
60282	11 W	900 l/h

JBL CristalProfi e1502 greenline

External filter for aquariums from 200 - 700 litres

- External filter for healthy aquarium water: closed water circuit for aquariums with 200 – 700 litres (100 – 150 cm)
- Fully equipped and ready to connect: built-in quick-start priming button, filter start without manual priming
- Patented system: high biological filter performance, 100 % more pre-filter surface, exchangeable filter media
- TÜV tested, safe, energy-efficient. 20W - 43% less power consumption. Dimens. (LxWxH): 20x23x48 cm. Guarantee: 2+2 years
- Incl. hoses & pipes12/16 mm, intake strainer, elbow, suction cups, filter media (bio-filter balls and bio-filter foam)

Art. no.	Watt	Performance
60283	20 W	1400 l/h

JBL CristalProfi e1902 greenline

External filter for aquariums from 200 - 800 litres

- External filter for healthy aquarium water: closed water circulation system for tanks with 200–800 litres (120-150 cm)
- Fully equipped and ready to connect: built-in quick-start priming button, filter start without manual priming
- Patented system: high biological filter performance, 100 % more pre-filter surface, exchangeable filter media
- TÜV tested, safe, energy-efficient: 36W power consumption - tremendous energy savings , dimensions (L/H/W): 20x23x55.5cm
- Incl. hoses & pipes 19/27 mm, intake strainer, elbow, suction cups, filter media (bio-filter balls and bio-filter foam)

Art. no.	Watt	Performance
60284	36 W	1900 l/h

JBL ProCristal i30

Internal filter for aquariums from 10-40 l

- For crystal clear & oxygen-rich water: internal filter for 10-40l aquariums with adjustable pump capacity up to 200 l/h
- Easy to install: attach suction cups to the filter, press the filter to the desired position. Cable length 1.5 m
- Fine-pored surface = safe for small fish & shrimps, water outlet rotatable & adjustable, for tanks from 14cm in height
- TÜV tested, 4 years guarantee, energy saving (3.7 W), dimensions: (LxWxH) 7.6x4.1x12.0 cm. Extendable by filter modules
- Contents: 1 ready-to-connect filter with filter sponge, activated carbon cartridge, air intake nozzle & 3 suction cups

Art. no.	Watt	For
60990	3,7 W	10-40 l

JBL CristalProfi i60 greenline

Energy-efficient internal filter for aquariums

- Internal filter for mechanical and biological filtering – for aquariums from 40 - 80 litres (40-80 cm)
- Connection of wide jet pipe/spray bar to the filter, placement of filter in the aquarium, connection of the power plug
- Extendable, rotatable water outlet pipe, large filter volume, easy to loosen suction cups, suitable for use with all filter media
- TÜV tested, submersible, high energy efficiency, maintenance-free pump: constant circulation, adjustable output
- Dimensions (LxHxW): 8.5 x 8.5 x 15.5 cm. Guarantee: 2 years (+2 years upon registration of the product)

Art. no.	Watt
60971	4 W

JBL CristalProfi i80 greenline

Energy-efficient internal filter for aquariums

- Internal filter for mechanical and biological filtering – for aquariums of 60 - 110 litres (60-80 cm)
- Connection of wide jet pipe/spray bar to the filter, placement of filter in the aquarium, connection of the power plug
- Extendable, rotatable water outlet pipe, large filter volume, easy to loosen suction cups, suitable for use with all filter media
- TÜV tested, submersible, high energy efficiency, maintenance-free pump: constant circulation, adjustable output
- Dimensions (LxHxW): 8.5 x 8.5 x 22.5 cm. Guarantee: 2 years (+2 years upon registration of the product)

Art. no.	Watt
60972	4 W

JBL CristalProfi i100 greenline

Energy-efficient internal filter for aquariums

- Internal filter for mechanical and biological filtering – for aquariums from 90 - 160 litres (80-100 cm)
- Connection of wide jet pipe/spray bar to the filter, placement of filter in the aquarium, connection of the power plug
- Extendable, rotatable water outlet pipe, large filter volume, easy to loosen suction cups, suitable for use with all filter media
- TÜV tested, submersible, high energy efficiency, maintenance-free pump: constant circulation, adjustable output
- Dimensions (LxHxW): 8.5x8.5x29.5 cm, only 8 W power consumption. Guarantee: 2 years (+2 years upon registr. of product)

Art. no.	Watt
60973	8 W

JBL CristalProfi i200 greenline

Energy-efficient internal filter for aquariums

- Internal filter for mechanical and biological filtering – for aquariums from 130 - 200 litres (80-120 cm)
- Connection of wide jet pipe/spray bar to the filter, placement of filter in the aquarium, connection of the power plug
- Extendable, rotatable water outlet pipe, large filter volume, easy to loosen suction cups, suitable for use with all filter media
- TÜV tested, submersible, high energy efficiency, maintenance-free pump: constant circulation, adjustable output
- Dimensions (LxHxW): 8.5x8.5x36.5 cm. Only 8 W power consumption. Guarantee: 2 years (+2 years upon registr. of product)

Art. no.	Watt
60974	8 W

JBL Symec VL

Filter wool fleece to remove water cloudiness

- Fast removal of all types of cloudiness in fresh and saltwater aquariums: filter wool fleece for aquarium filters
- Easy to use: individual cut of the 3 cm thick fleece mat. Inlay as last filter stage
- Crystal-clear water: filtering of all types of cloudiness and particles. Rinsing is possible – exchange is recommended
- No release of pollutants - water-neutral synthetic fibre
- Contents: 1 pack filter wool fleece for aquarium filters

Art. no.	Width	Length
62310	80 cm	25 cm

JBL ProFlow t300

Submersible pump with 80-300 l/h for water circulation

- Submersible pump with 80 – 300 l/h output. Use for bio filters, indoor fountains or other fountains
- Easy to install: connect hose or pipe with outlet 12/16 to the pump.
- Suitable for all bio filters, adjustable pump capacity, stainless steel shaft, max. pumping head 0.5 m
- Tested to TÜV, low power consumption of 4 W, completely submersible (IPX8), sturdy mounting due to 3 suction cups
- Dimensions (L/H/W): 57 x 34.4 x 54.5 mm, incl. 3 suction cups

Art. no.	Watt	Performance
60580	4 W	300 l/h

JBL ProFlow t500

Submersible pump 200-500 l/h for water circulation

- Submersible pump with 200 – 500 l/h output. Use for bio filters, indoor fountains or other fountains
- Easy to install: connect hose or pipe with outlet 12/16 to the pump.
- Suitable for all bio filters, adjustable pump capacity, stainless steel shaft, max. pumping head 0.8 m
- Tested to TÜV, low power consumption of 5 W, completely submersible (IPX8), sturdy mounting due to 3 suction cups
- Dimensions (L/H/W): 57 x 34.4 x 54.5 mm, incl. 3 suction cups

Art. no.	Watt	Performance
60581	5 W	500 l/h

JBL ProFlow u800

Universal pump with 900 l/h for circulation of water

- Universal pump with 900 l/h output. Use for bio filters, indoor fountains or other fountains
- Use in aquariums/terrariums as internal/external filter: connect hose inlet 19/25, outlet 16/22 to the pump
- Suitable for all bio filters, adjustable pump capacity, stainless steel shaft, max. pumping head 0.95 m
- Tested to TÜV, low power consumption of 7 W, completely submersible (IPX8), sturdy mounting due to 4 suction cups
- Incl. 4 suction cups. Dimensions (L/H/W): 79.1 x 45.5 x 82.5 mm

Art. no.	Watt	Performance
60583	7 W	900 l/h

JBL ProFlow u1100

Universal pump with 1200 l/h for circulation of water

- Universal pump with 1200 l/h output. Use for bio filters, indoor fountains or other fountains
- Use in aquariums/terrariums as internal/external filter: connect hose inlet 19/25, outlet 16/22 to the pump
- Suitable for all bio filters, adjustable pump capacity, stainless steel shaft, max. pumping head 1.3 m
- Tested to TÜV, low power consumption of 12 W, completely submersible (IPX8), sturdy mounting due to 4 suction cups
- Incl. 4 suction cups. Dimensions (L/H/W): 79.1 x 45.5 x 82.5 mm

Art. no.	Watt	Performance
60584	12 W	1200 l/h

JBL ProFlow u2000

Universal pump with 2000 l/h for circulation of water

- Universal pump with 2000 l/h output. Use for bio filters, indoor fountains or other fountains
- Use in aquariums/terrariums as internal/external filter: connect hose inlet 27/35, outlet 19/25 to the pump
- Suitable for all bio filters, adjustable pump capacity, stainless steel shaft, max. pumping head 2 m
- Tested to TÜV, low power consumption of 35 W, completely submersible (IPX8), sturdy mounting due to 4 suction cups
- Incl. 4 suction cups. Dimensions (L/H/W): 107 x 54 x 96 mm

Art. no.	Watt	Performance
60585	35 W	2000 l/h

JBL Fish Net, coarse

Wide-mesh premium aquarium net

- Gentle capture of aquarium fish: wide-meshed aquarium net with black net.
- Use in fresh and saltwater aquariums.
- Black net fabric makes catching fish easier, extra durable nylon netting
- Available in various sizes. The 15 cm wide net is also available with 41 cm long handle
- Sturdy reinforced handle for daily use

Art. no.	Width	Length
61032	5,5-6 cm	31 cm
61033	8 cm	31 cm
61034	10 cm	33 cm
61035	12 cm	35 cm
61036	15 cm	43 cm
61039	15 cm	54 cm
61037	20 cm	50,5 cm
61038	25 cm	54 cm

JBL Aquarium tubing GREY

Water hose for aquariums

- Flexible grey water hose, available in various diameters (4/6; 9/12; 12/16; 16/22; 19/27)
- Ready to use, especially for use with aquatic animals, free of heavy metals and other toxins
- Premium quality for aquariums, ponds or aqua-terrariums
- Grey-transparent colour, prevents algae formation in the hose better than in transparent hoses
- Contents: grey-transparent water hose, length: 2.5 m

Art. no.	Length	Ø
61086	2,5 m	4/6
61087	2,5 m	9/12
61088	2,5 m	12/16
61089	2,5 m	16/22
61090	2,5 m	19/27

JBL silicone hose 4/6 mm

Silicone hose with 2.5 m length and 4/6 mm diameter

- Flexible silicone hose for air pumps, with a diameter of 4/6 mm
- Free of heavy metals.
- Silicone-like material
- Unsuitable for CO2.
- Package contents: 1 silicone hose. Length: 2.5 m, Ø 4/6 mm

Art. no.	Length	Ø
61085	2,5 m	4/6 mm

JBL Cleany

Double-ended hose brush f. hoses with 12-30mm diameter

- For clean hoses on filter and pumps, to prevent output reduction caused by soiled hoses
- Easy to use: push matching end of hose brush through the hose and clean
- 160 cm long - cleaning of all hoses with 12 to 30 cm internal diameter (fits, for instance, to ALL JBL external filters)
- Up to 30 % more filter performance, averts a loss in performance: maintains the biological balance in the aquarium
- Package contents: 1 steel helix with small and large cleaning brush at each end, 160 cm long

Art. no.		For
61361		12-30 mm

JBL Aquarium Thermometer DigiScan

Digital adhering thermometer for aquarium panes

- Digital aquarium thermometer that displays water temperatures from 0-40 ° C in 0.1 ° C increments
- Insert battery, remove protective film and stick it onto the outside of the pane. The velcro stickers make it detachable
- Accuracy: +/- 1.0 °C. Size: 6.5 x 5.0 cm. Digit height: easy readable 2 cm. DO NOT immerse the thermometer in the water!
- The exact water temperature passes through the aquarium pane to the temperature contact on the back of the thermometer.
- Package contents: 1digital aquarium thermometer, incl. battery (AG13) and velcro stickers for attachment

Art. no.	Height	Width
61220	50 mm	65 mm

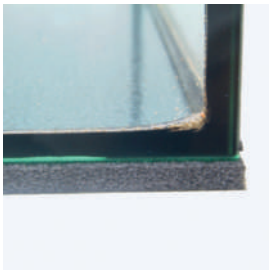
Included: battery type alkaline 1,5V AG13

JBL AquaPad

Special underlay for aquariums and terrariums

- Avoids tension in glass – compensates unevenness under aquariums and inside aquariums when there are rock constructions
- Easy to use: place the AquaPad under the aquarium or inside the aquarium for heavy rock constructions
- Compensates unevenness, prevents heat loss and load piles inside the aquarium caused by heavy stones
- Prevention of glass breakage, stability
- Contents: 1 special underlay for aquariums and terrariums

Art. no.	Width	Length
61100	30 cm	60 cm
61101	40 cm	80 cm
61102	40 cm	100 cm
61106	50 cm	100 cm
61103	40 cm	120 cm
61104	50 cm	120 cm
61105	50 cm	150 cm



JBL ProScape Tool S straight

Straight trimming scissors for cutting plants

- Professional plant trimming to create aquarium landscapes: straight trimming scissors for aquascaping
- Easy to use: 27mm sized finger holes also suitable for bigger fingers, fatigue-free working. Weight: 60.5g, length: 20cm
- Especially smooth surface: stainless high-quality steel, made in Japan with extremely high cutting precision
- Maintenance tip: rinse with freshwater after use in saltwater
- Package contents: 1 pair straight trimming scissors for aquascaping, ProScape Tool S straight

Art. no.	Length
61540	20 cm
61541	30 cm

JBL ProScape Tool P slim line

Pincers for the decoration and insertion of plants

- Professional insertion of aquatic plants for the design of aquarium landscapes: slender and straight pincers
- Easy to use: fatigue-free working thanks to its light weight: 44.8 g, length: 30 cm
- Protects plant: tips with cross corrugation, especially smooth surface: stainless high-quality steel, made in Japan.
- Maintenance tip: rinse with freshwater after use in saltwater
- Package contents: 1 pair slender, straight pincers for aquascaping, ProScape Tool P slim line

Art. no.	Length
61549	30 cm

JBL CombiFix

Plant tongs for aquariums

- Professional work on aquariums without wet hands: plant tongs for fresh- and saltwater aquariums and terrariums
- Dry arms: 46 cm long tongs for gripping dead plant leaves or sunken materials
- Best grip: slightly enlarged fluted tip for delicate work on plants
- Easy cleaning: clean plastic tongs under running water
- Package content: 1 plant tongs for aquariums

Art. no.	Length
61505	46 cm

JBL Sansibar WHITE

White substrate for aquariums

- Perfect hold for plant roots: substrate with 0.2 - 0.6 mm grain size for freshwater and marine aquariums and terrariums
- Vigorous plant growth: prevents the seeping in of waste material with its fine granulation and density
- No release of unwanted pollutants into the water. Fine, round-shaped quartz sand is gentle on sensitive barbels
- Use: spread substrate on top of the nutrient substrate (approx. 6-8 cm for vigorous plant growth)
- Package contents: 1 bag Sansibar White. Not fully suitable for undergravel heating cables

Art. no.	Graining	Content
67055	0,2-0,6 mm	5 kg
67056	0,2-0,6 mm	10 kg

JBL Sansibar RIVER

Light substrate for aquariums

- Substrate with 0.8 mm grain size for freshwater and marine aquariums and terrariums
- Coarse-grained, round-shaped sand is gentle on sensitive barbels. Ideal for digging fish, e.g. armoured catfish, loaches
- Ideal for fish, invertebrates and plants: no release of unwanted pollutants into the water.
- Spread on top of the nutrient substrate (6-8 cm for vigorous plant growth). Well suited for undergravel heater cables
- Package contents: 1 bag Sansibar River

Art. no.	Graining	Content
67058	ca. 0,8 mm	5 kg
67059	ca. 0,8 mm	10 kg

JBL ProScape Volcano Mineral

Volcanic natural substrate for aquascaping

- Dedicated substrate for aquascaping aquariums
- Porous volcanic rock for water circulation at bottom of aquarium. Supplies plant roots with organic plant nutrients
- Ideal oxygen supply, circulation through open-pored structure. Long-term nutrient/mineral supply
- No slipping: volcanic rock becomes firmly interlocked.
- Ideally suited for a firm foundation

Art. no.	Content
67077	3 l
67078	9 l

JBL FIXOL

Adhesive for background pictures in aquariums and terrariums

- Perfect hold without bubbles: non-toxic adhesive for glossy plastic foil backgrounds
- Complete visibility: no annoying reflections caused by air gaps or unwanted bubbles (3D effect)
- To use: apply adhesive to the outside of the aquarium/terrarium rear pane, position the foil on the outside on rear pane, smooth gently with a scraper
- Not suitable for: foil backgrounds with a matt surface, backgrounds in 3D look, paper foil backgrounds
- 1 bottle adhesive Fixol, 50 ml, incl. scraper

Art. no.	For	Content
61210	2,0x0,8 m	50 ml

JBL ProHaru Universal 80ml

Universal adhesive for aquariums, terrariums and ponds

- For the bonding of decorations, panes, technical items, leaks and anything else
- Bonds above and under water. Non-toxic to animals and plants.
- Bonds glass, metal (aluminium), wood, plastic materials (except PE, PP), mineral materials etc.
- Also glues mosses and ferns to decorations
- 80 ml black universal adhesive in resealable tube

Art. no.	Content
61397	80 ml

JBL ProHaru Rapid

Instant adhesive gel for aquariums and terrariums

- Bonds plants, corals and small decorations
- Fixes moss, plants and coral pieces
- Hardens instantly
- Transparent colour
- 20 g in resealable tube with tip

Art. no.	Content
61399	20 g

JBL AquaSil transparent

Special silicone for aquariums and terrariums

- Special transparent silicone for the repair and production of frameless glass aquariums and bonding of decorative material
- For use please follow the product information attached
- Harmless for fish, fast hardening, high adhesive strength
- TÜV type tested, after hardening: non-toxic, odourless and physiologically safe.
- Package contents: 1 special silicone, AquaSil transparent. Incl. cartridge, dosage nozzle and plunger

Art. no.	Content
61391	80 ml
61394	310 ml

JBL Silicone Spray

Care spray for technical aquarium/garden pond items

- Cares for all movable parts and seals of technical articles in the aquarium and garden pond
- Spray on moving parts, seals and O-rings
- Water-neutral silicone grease spray
- Water clear, odourless, long-term adhesion, CFC-free, free of oils and ecotoxic substances
- Contents: 1 pressurised gas cylinder with 400 ml content and spray head attachment for a precise, fine stream

Art. no.	Content	Content
61395	223 g	400 ml

JBL Cocos Cava

Coconut cave for aquariums and terrariums

- Hiding and spawning place for fish, sleeping and hiding place for terrarium animals
- Individual design: reproduction of the animals' biotopes with natural materials – decoration attractive for animals and humans
- Natural product, water neutral: no release of unwanted pollutants into the water
- Tip: rinse the decoration under running water before using it in the aquarium
- Note: Since this is a natural product, the size can slightly differ

Art. no.	Size
61510	1/2 L
61511	1/2 M
61512	3/4 L
61514	1/1 M
61513	1/1 L

JBL Turtle Food

Main food with crayfish for turtles

- Especially for the dietry needs of turtles and pond terrapins: natural food with food sticks containing fish
- Excellent palatability: natural food made of gently dried crustaceans, water insects and sticks
- Healthy shell growth thanks to natural calcium content in the shells of the crustaceans, no water contamination
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no.	Size	Weight
70362	100 ml	11 g
70363	250 ml	30 g
70364	1000 ml	120 g
70365	2500 ml	300 g

JBL Agil

Main foodsticks for turtles 10 – 50 cm in size

- Especially for the nutritional requirements of turtles and pond terrapins: staple food in the form of floating sticks
- Excellent palatability: proteins from fish and shrimps
- Promotion of bone growth thanks to lysine, strengthens and stabilises immunity by means of multivitamin complex
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no.	Size	Weight
70342	250 ml	100 g
70343	1000 ml	400 g
70344	2500 ml	1000 g
70346	10,5 l	4200 g

JBL Energil

Main food for turtles and pond terrapins

- Main food for turtles and pond terrapins: whole fish and crustaceans
- Excellent palatability: untreated, whole fish and crustaceans
- Floats on surface: encourages movement through natural preying instinct
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening.

Art. no.	Size	Weight
70313	1000 ml	170 g
70314	2500 ml	430 g

JBL Tortil

Food tablets for turtles and pond terrapins

- Main food for turtles and pond terrapins: food tablets for turtles
- Excellent palatability: 25 % crustaceans, proteins from fish and shrimps
- Promotes natural eating behaviour with sinking tablets, strengthens and stabilises immunity
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no.	Size	Weight
70301	100 ml	60 g

JBL Calcil

Mineralised food sticks for turtles and pond terrapins

- Main food for turtles: mineral-packed food sticks for turtles and tortoises 10 - 50 cm in size
- Excellent palatability: high protein content from fish and shrimps
- Healthy shell growth thanks to added minerals, strengthens and stabilises immunity
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening.

Art. no.	Size	Weight
70292	250 ml	95 g

JBL Gammarus

Treats for turtles from 10 to 50 cm

- Supplementary food: cleaned gammarus crustaceans, supplementary food for turtles and terrapins
- Excellent palatability: gently dried gammarus crustaceans
- Natural calcium content promotes healthy shell growth
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no.	Size	Weight
70322	250 ml	25 g
70323	1000 ml	110 g

JBL Gammarus Refill pack

Treats for turtles from 10 to 50 cm

- Supplementary food: cleaned gammarus crustaceans, feed supplement for turtles and terrapins, refill pack
- Excellent palatability: gently dried gammarus crustaceans
- Natural calcium content promotes healthy shell growth
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening.

Art. no.	Size	Weight
70326	750 ml	80 g

Feeding > Turtles/Pond terrapins > Breeding

JBL ProBaby
Special food for young turtles
- Main food for baby turtles: sifted and cleaned small crustaceans and insects
- Excellent acceptance: gammarus and insects with vitamin supplement
- Healthy shell growth thanks to natural calcium content, immunity is developed and stabilised
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no.	Size	Weight
70360	100 ml	13 g

JBL Rugil
Food sticks for small turtles
- Floating food sticks for turtles: species-appropriate food mixture for small turtles 8 – 15 cm in size
- Impressive palatibility: 20 % wheat germ, fish and shrimps.
- Healthy growth and efficient energy metabolism thanks to wheat germs and omega-3 fatty acids
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening.

Art. no.	Size	Weight
70351	100 ml	37 g

Feeding > Tortoises > Main food

NEW

JBL Herbil NEW
Complete food for tortoises
- Green food pellets with minerals and vitamins for all tortoise species
- Put pellets into food bowl or soak in advance. Adult animals 4-5 feeding per week. Feed juveniles on a daily basis
- High fibre content with low plant protein content for a slow intestinal passage and ideal digestion of fibre
- Contains: dried grasses, minerals and herbs with vitamins. Without any colourings or preservatives
- Package contents: 1 water and light-proof tin, sealed for freshness with green food pellets of approx. 7 mm diameter

Art. no.	Size	Weight
70454	250 ml	110 g
70455	1000 ml	450 g

JBL Agivert
Main food for tortoises 10 – 50 cm in size
- Especially for the nutritional requirements of tortoises: food sticks made up of a mixture of purely plant-based raw materials
- To maintain the animals' health: selected herbs and plants
- Ideal for the digestive system: high fibre content, low protein content
- Healthy growth without shell problems, stabilises and strengthens immunity
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no.	Size	Weight
70331	100 ml	43 g
70332	250 ml	105 g
70333	1000 ml	420 g

Feeding > Reptiles > Main food

JBL Iguvert
Main food for iguanas and lizards
- For the nutritional needs of iguanas and other plant-eating reptiles: food sticks made from 100% plant ingredients
- Ideal for the digestive system: high fibre content, low protein content
- Healthy growth, stabilises and strengthens immunity through vitamin complex and vitamin C
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no.	Size	Weight
70282	250 ml	105 g
70283	420 g	1000 ml

Feeding > Vitamins/Minerals

JBL Turtle Sun Aqua
Vitamins for turtles and pond terrapins
- Especially for the requirements of turtles: feed supplement with essential vitamins
- Easy to use: fill the measuring spoon with food sticks, add 10 to 20 drops vitamin complex, feed to the turtles
- Healthy turtles: optimal growth, boosts appetite, balances shell formation
- High-quality vitamin product: water-stable, fully active vitamins
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no.	Content
70441	10 ml

JBL Tortoise Sun Terra

Vitamins for tortoises

- Especially for the requirements of tortoises: feed supplement with essential vitamins
- Easy to use: fill the measuring spoon food with sticks, add 10 to 20 drops vitamin complex, feed to the tortoises
- Healthy tortoises: optimal growth, boosts appetite, balances shell formation
- High-quality vitamin product: water-stable, fully active vitamins
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no. **70442**

Content 10 ml

JBL TerraVit Powder

Vitamins and trace elements for terrarium animals

- Especially for the requirements of reptiles and other terrarium animals: supplementary food with essential vitamins
- Easy to use: put feeder insects into a container, sprinkle with a dosing spoon over the feeder insects, shake.
- Especially suitable to vitaminize living feeder insects, plant leaves or fruit
- High-quality vitamin product: fully active vitamins
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no. **71029**

Content 100 g

JBL TerraVit fluid

Vitamins and trace elements for terrarium animals

- Especially for the requirements of reptiles and other terrarium animals: supplementary food with essential vitamins.
- Easy to use: put drops on the food and/or drinking or bathing container.
- Healthy terrarium animals: prevents deficiency diseases, promotes growth, appetite and natural process of shedding skin
- High-quality vitamin product: fully active, water-stable vitamins
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no. **71032**

Content 50 ml

JBL MicroCalcium

Mineral supplementary food for all reptiles

- Especially suited to reptiles: supplementary food for the calcium supply for healthy terrarium animals
- Easy to use: put feeder insects into a container, sprinkle with a dosing spoon over the feeder insects, shake.
- Particularly suitable for sprinkling on live feeder insects
- High-quality calcium preparation: fast and effective adhesion through micro-fine particles.
- Can be stored for 3 years unopened, use within 3 months after opening.

Art. no. **71033**

Content 100 g

JBL TerraCrick

Complete food for feeder insects

- Improves nutritional value of feeder insects for terrarium animals: wholesome complete food for crickets and insects
- Easy to use: offer TerraCrick 24 hours before feeding the insects to your terrarium animals.
- Valuable ingredients (minerals, carbohydrates, vitamins) to fill the digestive tract
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no. **70271**

Content 100 ml

Weight 60 g

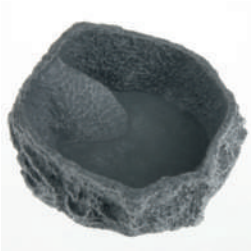
JBL CrickBox

Shaker box to sprinkle powder on feeder insects

- Improves the nutritional value of feeder insects: shaker container to sprinkle powder on feeder insects
- Easy to use: put in the feeder animals, sprinkle with mineral powder, shake
- Clean, easy and comfortable
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Dimensions: 6 x 9 cm

Art. no. **71034**

Size 6 x 9 cm



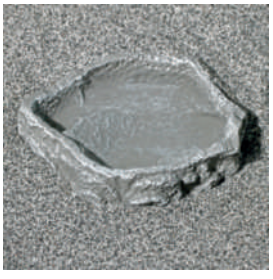
JBL ReptilBar GREY

Feeding, drinking, bathing bowl for terrarium animals

- Individual terrarium design: bowl in stone look for food, water or for bathing.
- Non-toxic: coloured resin - does not emit any harmful substances, easy to clean and disinfect
- Rescue ladder to prevent feeder animals from drowning
- Heavy –duty version to prevent it from being accidentally knocked over
- ReptilBar – the bowl for terrariums: available in various colours and sizes

Art. no.
71070
71071
71072
71073
71074
71075

Size
XS
S
M
L
XL
XXL

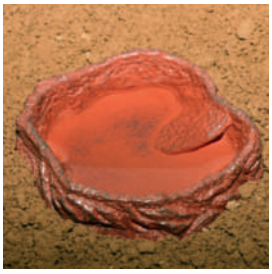


JBL ReptilBar RED

Red feeding, drinking, bathing bowl for terrariums

- Individual terrarium design: bowl in red sandstone look for food, water or for bathing
- Non-toxic: coloured resin - does not emit any harmful substances, easy to clean and disinfect
- Rescue ladder to prevent feeder animals from drowning, heavy–duty version to prevent it from being knocked over
- ReptilBar – the bowl for terrariums: available in various colours and sizes
- Package contents: feeding, drinking and bathing bowl for terrarium animals, red, available in 6 sizes.

Art. no.	Size
71076	XS
71077	S
71078	M
71079	L
71080	XL
71081	XXL



JBL ReptilBar SAND

Terrarium feeding, drinking, bathing bowl, sand colour

- Individual terrarium design: bowl in beige sandstone look for food, water or for bathing.
- Non-toxic: coloured resin - does not emit any harmful substances, easy to clean and disinfect
- Rescue ladder to prevent feeder animals from drowning, heavy –duty version to prevent it from being knocked over
- ReptilBar – the bowl for terrariums: available in various colours and sizes
- Package contents: feeding, drinking and bathing bowl for terrarium animals, sand coloured, available in 6 sizes.

Art. no.	Size
71082	XS
71083	S
71084	M
71085	L
71086	XL
71087	XXL

JBL Biotopol T

Water conditioner for terrariums

- For reptiles and amphibians in terrariums and aqua-terrariums: converts tap water into bathing/drinking water.
- Removes aggressive chlorine and chloramine, absorbs toxic heavy metals
- Improves health of reptile and amphibian skin thanks to valuable plant extracts and vitamin B
- Promotes problem-free shedding
- For 200 l

Art. no.	Range	Content
71001	200 l	50 ml

JBL Tortoise Shine

Shell care for tortoises

- Tortoise Shine: for the tortoise's shell care and pest control.
- Works effectively against ticks.
- Easy to use: bathe the tortoise, dry, spread thin coat of Tortoise Shine over the shell with a cotton pad
- Prevents brittle shell surface, non-toxic – but avoid contact with the animal's eyes.
- 100 ml contain: Oleum syzygii aromatici 0.4 ml, Paraffinum subliquidum DAB7 ad 100 ml

Art. no.	Content
70450	10 ml

JBL TerraGel

Water gel for terrarium animals

- Healthy and safe supply of drinking water in the aquarium: for small reptiles and spiders
- Mix powder with water, put into microwave for 1-3 min, leave to cool - ready!
- Pure natural seaweed product, no chemical residues
- Can be mixed to desired gel consistency
- Contents for max. 3 litres prepared gel

Art. no.	Content
71005	30 g

JBL EasyTurtle

Special granulate to remove odours

- Special mineral granulate which produces odour-free and crystal-clear water in aqua-terrariums
- Quick and effective breakdown of animal excrement.
- Easy to use: spread required quantity over the water covered bottom once a month
- Possible water discolouration disappears after a short time.
- 25 g are sufficient for approx. 50 l water.

Art. no.	Range	Content
71036	50 l	25 g

Care products > Habitat > Cleaning

NEW

JBL ProClean Terra

Glass cleaner for terrarium panes

- Clean terrarium panes: powerful glass cleaner with pump spray head
- Effortless cleaning: spray onto glass pane, dry it with soft lint-free cloth if required, repeat the procedure
- Removes most stubborn lime-scale from the inside and outsite of the pane, cleans with the power of nature
- Safe for animals and plants
- Package contents: 250 ml glass cleaner with pump sprayer for terrarium panes

Art. no.	Content
71038	250 ml

Technic > Lighting > Daylight without UV-B

NEW

JBL Reptil LED Daylight 12W

LED daylight lamp with full spectrum for terrariums

- Energy-efficient LED daylight lamp with high colour rendering index CRI of 85 for illuminating terrariums & plants
- Simply screw into the E27 socket and switch on. Replace after 4 years
- Sun-like full spectrum with 5000 K colour temperature for perfect plant growth and beautiful animal colours
- Add a heating mat for animals in need of UV with UV spotlights/L-U-W lamps or for heat-loving animals only
- Package contents: 1 LED light 12 W with full spectrum daylight and 1520 lumen light output

Art. no.	Ø	Length
61827	65 mm	130 mm

JBL ReptilDay

Halogen spotlight with daylight full spectrum

- Facilitation of plant growth and vitality of the animals: production of areas of warmth and light
- Warmth regulation modelled on nature by sunbathing under the lamp, facilities natural behaviour through UV-A proportion
- 15 % more light, twice the service life compared to conventional spot lights.
- Creating daylight full spectrum 2900 K
- Average service life approx. 2000 hours

Art. no.	Socket	Performance
61841	E27	35 W
61842	E27	50 W
61843	E27	75 W
61844	E27	100 W

Technic > Lighting > Daylight with UV-B

JBL UV-Spot plus

UV spot lamp with daylight spectrum

- Healthy and lively reptiles: effective supply with essential UV-A and UV-B.
- Produces heat and light at the same time
- Self-starting without ballast.
- Optimal safety: thermal protection against overheating, no harmful UV-C radiation.
- 38 % UV-A, 7 % UV-B, E27

Art. no.	Socket	Performance
61834	E27	80 W
61838	E27	100 W
61839	E27	160 W

JBL ReptilDesert L-U-W Light alu

Solar light (spot light) for desert terrariums

- Full spectrum solar light (spot light) made of aluminium for desert terrariums with 25° spot.
- Complete solution: L-U-W = light+UV+warmth. All-day lighting with 5000 K colour temperature for 10-12 hours per day
- Metal halide lamps (L-U-W/HQI) require special ballasts such as the JBL TempSet Unit L-U-W for operation
- Aluminium body: better heat dissipation – more output, more UV output, no overheating
- Package contents: 1 solar light (spot light) for desert terrariums

Art. no.	Watt
61890	35 W
61891	50 W
61892	70 W

JBL ReptilJungle L-U-W Light alu

Wide-beam spotlight for rainforest terrariums

- Full spectrum solar light (spot light) made of aluminium for rainforest terrariums with 40° wide beam spot
- Complete solution: L-U-W = light+UV+warmth. All-day lighting with 5000 K colour temperature for 10-12 hours per day
- Metal halide lamps (L-U-W/HQI) require special ballasts such as the JBL TempSet Unit L-U-W for operation
- Aluminium body: better heat dissipation - higher performance, more UV output, no overheating, E27 socket
- Package contents: 1 wide-beam spotlight for rainforest terrariums

Art. no.	Watt
61894	35 W
61895	50 W
61896	70 W

JBL TempSet Unit L-U-W

Installation kit for metal-halide lamps

- For the safe operation of any metal-halide lamp: pre-assembled installation kit with quick coupling
- Attach holder in terrarium cover, screw in LUW lamp (separately available), plug in
- Lamp angle freely adjustable up to 180°. For metal halide lamps such a socket with special ballast is essential
- Heat-resistant to 270 °C. quality ballast with automatic shut-off, overheat protection, safety shutdown
- Package contents: installation kit for metal-halide lamps with E27 socket. (Available for 35, 50 and 70 W)

Art. no.	For
61878	35 W
61875	50 W
61879	70 W

NEW

JBL ReptilDesert UV light

Energy-saving lamp for desert terrariums

- Compact lamp with high UVA & UVB proportions for desert terrariums; 6500 Kelvin for light conditions modelled on nature
- For the species-appropriate care of desert animals, such as bearded dragons, many tortoises and spiny-tailed agamas
- Facilitates activity, appetite and reproductive behaviour through UV-A, ideal calcium metabolism through UV-B
- Recommended distance to the animal: 5 to 8 cm with a daily irradiation time of 8-10 hours
- Package contents: one compact lamp with E27 socket

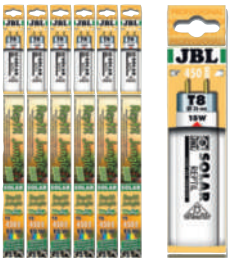
Art. no.	Socket	Performance
61897	E27	15 W
61898	E27	23 W

JBL ReptilJungle UV Light

Energy-saving lamp for rainforest terrariums

- Terrarium lamp with medium UV for tropical terrariums and 6500 Kelvin for conditions modelled on nature
- For a species-specific care of animals from the tropics and subtropics, such as chameleons and snakes
- Facilitates activity, appetite and reproductive behaviour with UV-A, ideal calcium metabolism thanks to UV-B
- Recommended distance to the animal: 5 to 20 cm with a daily irradiation time of 8-10 hours
- E27 socket.

Art. no.	Socket	Performance
61856	E27	15 W
61857	E27	23 W

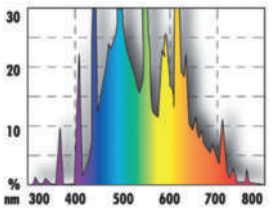


JBL SOLAR REPTIL JUNGLE T8

T8 terrarium fluorescent tube for rainforest animals

- For all terrarium animals which, due to their way of life, are only exposed to low UV radiation (e.g. rainforest)
- If possible install lamp inside terrarium since glass panes absorb 50 % of UV light
- Adapted low UV-B proportion of 0.5 % and UV-A of 2.0 % for rainforest animals, which rarely receive sunlight
- Perfect for ground-dwelling rainforest animals, such as spiders, scorpions, frogs and for terrarium plants
- Colour rendering and full spectrum are guaranteed for 12 months. Includes reminder label for replacement

Art. no.	Length	Performance
61590	438 mm	15 W
61591	590 mm	18 W
61592	742 mm	25 W
61593	895 mm	30 W
61594	1200 mm	36 W
61595	1047 mm	38 W

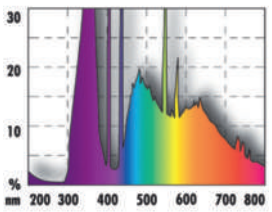


JBL SOLAR REPTIL SUN T8

Special T8 terrarium fluoresc. tube for desert animals

- For all desert animals which are exposed to full sunlight in their natural habitat.
- Light spectrum, adapted to the natural light conditions of diurnal desert animals
- High UV-B proportion (8.0 %)
- High UV-A proportion (36.0 %)
- Colour rendering and full spectrum are guaranteed for 12 months. Includes reminder label for replacement

Art. no.	Length	Performance
61650	438 mm	15 W
61651	590 mm	18 W
61652	742 mm	25 W
61653	895 mm	30 W
61654	1200 mm	36 W
61655	1047 mm	38 W

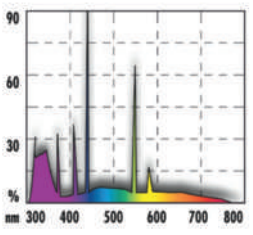


JBL SOLAR REPTIL SUN ULTRA T5

Special T5 terrarium fluoresc. tube for desert animals

- For all desert animals which are exposed to full sunlight in their natural habitat
- Light spectrum, adapted to the natural light conditions of diurnal desert animals
- Facilitates activity, appetite and reproductive behaviour with UV-A, ideal calcium metabolism thanks to UV-B
- Daily operation time 9-11 hours
- Colour rendering and full spectrum are guaranteed for 12 months. Includes reminder label for replacement

Art. no.	Length	Performance
61597	550 mm	24 W
61598	850 mm	39 W
61599	1150 mm	54 W



Technic > Lighting > Sockets & installation

JBL TempSet basic
Installation kit for lamps in terrariums
- For more safety in the terrarium: installation kit for lamps in terrariums
- Ensures safe operation of energy-saving & incandescent lamps, halogen & neodymium spot lamps and UV spot lamps
- Easy to install: mounting plate, screws and switch are pre-assembled
- Heat and dimension stable to 270 °C
- Installation kit for an output up to 250 W, including 1.5 m cable, E27

Art. no.	Socket
71180	E 27

JBL TempSet angle
Installation kit for lamps in terrariums
- For more safety in the terrarium: installation kit with joint for lamps in terrariums.
- For safe operation of energy-saving + incandescent lamps, halogen + neodymium spot lamps, UV spot lamps, ceramic lamps
- Easy to install: mounting plate, screws and switch are pre-assembled
- Heat and dimension stable to 270 °C
- Installation kit with joint (up to 60° angle) for lamps in terrariums with output up to 250 W

Art. no.	Socket
71181	E 27

JBL TempSet angle+connect
Installation kit for lamps in terrariums
- For more safety in the terrarium: installation kit with joint and connector for lamps in terrariums.
- For safe operation of energy-saving & incandescent lamps, halogen & neodymium spot lamps, UV spot lamps, ceramic lamps
- Easy to install: mounting plate, screws and switch are pre-assembled
- Heat and dimension stable to 270 °C
- Installation kit with joint (up to 60° angle), WINSTA connector for install. through a 2 cm hole for output up to 250 W

Art. no.	Socket
71183	E 27

Technic > Lighting > Accessories lighting

JBL TempProtect II light
Reptile thermal burn protection for JBL TempSet items
- Safety: lamp screen made of sturdy, special plastic LCP (Liquid Crystal Polymer), heat-resistant up to 290°C
- Installation: unscrew adapter, put it around socket of JBL TempSet, screw adapter in again together with Tempset
- Prevents overheating & reduction of the bulb's operational lifespan. Suitable for: UV spotlights, metal-halide lamps
- Extremely safe: narrow slits and fine mesh prevent young animals from entering and burning themselves
- Contains: protective basket complete with metal mesh cover and bayonet for JBL TempSet (not included), screw driver

Art. no.	Size	Size
71190	M	100 mm
71191	L	130 mm

JBL TempReflect light
Reflector screen for energy-saving lamps
- Doubles light 100%: high gloss reflector screen for terrariums
- Clip reflector to holder (JBL TempSet not included), screw in lamp, switch on – ready
- Increases depth of penetration and directs the essential UV-B light (with energy-efficient lamps emitting UV-B)
- Not suitable for use with lamps that get very hot or with heat emitters
- Suitable for terrariums approx. 80 – 150 cm height

Art. no.	up to
71189	30 W

Technic > Warmth & heating > Spotlights & mats

JBL ReptilHeat
Ceramic heat lamp
- Ideal heat radiation for terrarium animals: ceramic heat lamp for terrariums
- Easy to install – can also be fitted inside the terrarium
- Requires a special socket (e.g. TempSet Heat)
- Heat protection required
- Radiant heater does not emit visible light

Art. no.	Socket	Performance
71173	E27	60 W
71174	E27	100 W
71175	E27	150 W

Technic > Warmth & heating > Spotlights & mats

JBL TerraTemp heatmat

Heating mat for terrariums

- Ideal heat radiation for animals and plants: self-adhesive infrared heating mat for terrariums
- Easy to mount: self-adhesive fixing at bottom, sidewall or top
- Especially robust: extra strong PET foil
- Highest safety: 2 insulation layers, electrical connection sealed with a special resin
- Including overheat protection

Art. no.	Size	Performance
71147	280 x 180	8 W
71148	280 x 350	15 W
71149	280 x 600	25 W

Technic > Warmth & heating > Accessories heating

JBL TempSet Heat

Install. kit with ceramic bulb holder for heat radiator

- Reptile protection against burns – kit with ceramik bulb holder, heat guard and protective mesh for heat lamps
- Best protection: sturdy, heat-resistant special plastic, mesh made of galvanised steel, bottom made of stainless steel
- Young animals cannot enter the mesh due to small mesh size and narrow slits
- Distance of at least 50 cm from pets and burnable substrates
- Up to 160 W, E27

Art. no.	Socket	up to
71185	E27	150 W

Accessories > Control > Measuring devices & locks

JBL TerraControl

Thermometer and hygrometer incl. suction cup

- Easy check thermometer for the relative humidity and the temperature in terrariums
- Temperature range: -30 to +60 degrees
- Humidity values: from 0 to 100 % in steps of 10 %
- Area between 20 and 35 is marked as "optimal"
- Package contents: 1 thermometer and 1 hygrometer incl. suction cups and Velcro connections

Art. no.		
61517		2 piece

JBL TerraSafe

Lock for terrarium pane

- Secure terrarium: terrarium lock for sliding doors.
- Easy and quick installation: insert keylock on opened door, close door, slide lock counterpart onto keylock and lock.
- Robust design for sliding doors. For all panes from 3 up to 6 mm glass thickness
- Incl. 2 keys
- Package contents: 1 keylock for terrarium pane, incl. 2 keys

Art. no.		Content
61516		1 Piece

Accessories > Decoration

JBL Cork Bark

Cork bark for decoration

- Cork bark as hiding and spawning place for fish, sleeping and hiding place for terrarium animals
- Decoration for the individual design: place in the aquarium, can be weighted down (to prevent floating)
- Natural product without toxic substances, water neutral: no release of unwanted pollutants into the water
- Clean thoroughly before use, initial brown discoloration of water disappears after partial water changes
- Design of backgrounds and hiding places

Art. no.		
67040		per Kg

JBL ReptilCava GREY

Grey cave for terrarium animals

- Individual terrarium design: cave in stone look - retreat for the terrarium dwellers
- Non-toxic: coloured resin - does not release any harmful substances
- Heavy –duty version to prevent it from being accidentally knocked over
- Reproduction in natural look.
- ReptilCava - the cave for terrariums: available in various colours and sizes

Art. no.		Size
71088		S
71089		M
71090		XL

JBL ReptilCava SAND

Cave for terrarium animals, sand coloured

- Individual terrarium design: sand coloured cave in sandstone look - retreat for your terrarium dwellers
- Non-toxic: coloured resin - does not release any harmful substances
- Heavy –duty version to prevent it from being accidentally knocked over
- ReptilCava - the cave for terrariums: available in various colours and sizes
- Package contents: 1 x JBL cave for terrarium animals, ReptilCava, available in 6 sizes, sand coloured

Art. no.	Size
71096	S
71097	M
71098	XL

JBL TerraBasis

Substrate for rainforest terrariums

- For humid and semi-humid terrariums: specialty soil from selected natural products for rainforest terrariums
- Does not contain fertiliser, high humidity capactity, no mould formation thanks to mould-resistant coconut humus
- Loose bottom covering provides activity for digging animals
- For each animal the right ground: information about the suitable animal species at the bottom of the bag
- Available in two sizes

Art. no.	Content
71010	5 l
71012	20 l

JBL TerraCoco

Substrate for all types of terrariums

- Substrate for all types of terrariums
- Natural substrate made of coconut chippings.
- From the fibrous outer husks of ripe coconuts
- Natural germ-inhibiting effect.
- Reduces fungal infection.

Art. no.	Content
71015	5 l

JBL TerraCoco Compact

Substrate for all types of terrariums

- Substrate for all types of terrariums
- Natural substrate made of coconut chippings
- From the fibrous outer husks of ripe coconuts.
- Natural germ-inhibiting effect.
- Reduces fungal infection.

Art. no.	Content
71025	450 g

JBL TerraCoco Humus

Substrate for all types of terrariums

- Substrate for all types of terrariums
- Natural substrate made of turf-like coconut humus.
- From the fibrous outer husks of ripe coconuts.
- Natural germ-inhibiting effect.
- Reduces fungal infection.

Art. no.	Content
71026	600 g

JBL TerraWood

Substrate for dry and semi-dry terrariums

- For dry and semi-dry terrariums: natural substrate made from beech chippings
- Evenly sprinkle JBL TerraWood on the floor surface, then spread it
- Pesticide-free
- Also suitable as litter for birds and small pets
- Available in 2 sizes

Art. no.	Graining	Content
71016	10-20 mm	5 l
71006	10-20 mm	20 l

JBL TerraSand natural red

Substrate for desert terrariums

- For desert terrariums: natural substrate made of fine red sand.
- Grain size: 0.1-0.2 mm, which can easily be moulded into caves etc. when wet and retains its shape after drying
- Virtually dust-free sand
- Fine grain encourages the natural digging behaviour of many species
- Round grain shape reduces abrasive effect on the animals' skin

Art. no.	Graining	Content
71017	0,1-0,2 mm	7,5 kg

JBL TerraSand natural yellow

Substrate for desert terrariums

- For desert terrariums: natural substrate made of fine yellow sand
- Grain size: 0.7-1.25 mm
- Virtually dust-free sand
- Fine grains encourage the natural digging behaviour of many species
- Round grain shape reduces abrasive effect on the animals' skin

Art. no.	Graining	Content
71018	0,7-1,25 mm	7,5 kg

JBL TerraSand natural white

Substrate for desert terrariums

- For desert terrariums: natural substrate made of fine white sand
- Grain size: 0.2-0.5 mm
- Virtually dust-free sand
- Fine grain encourages the natural digging behaviour of many species
- Round grain shape reduces abrasive effect on the animals' skin

Art. no.	Graining	Content
71019	0,2-0,5 mm	7,5 kg

JBL TerraBark

Ground substrate for forest and rainforest terrariums

- For forest and rainforest terrariums: substrate made of pine bark.
- Pesticide-free
- Germ and fungus curbing effect.
- Humidity-regulating property.
- Made exclusively from the valuable underbark of pine trees

Art. no.	Graining	Content
71021	2-10 mm	5 l
71024	2-10 mm	20 l
71020	10-20 mm	5 l
71022	10-20 mm	20 l
71023	20-30 mm	20 l

BRESSER

A microscope is indispensable to diagnose disease and check for parasites. Problems or maintenance errors can be noticed early and you can start the correct treatment right away.
BRESSER is one of the leading manufacturers for optical products worldwide. Since 1957 the company stands for affordable products that suit any requirement. The focus is on user-oriented advice, because the employees are also enthusiastic hobbyists. You can always rely on their expertise and commitment. Through the cooperation with BRESSER, JBL offers selected microscopes and accessories at discount prices. Ask your JBL dealer for BRESSER microscopes.

Art.No.: 5102060

BRESSER Erudit DLX biological microscope

Professional monocular microscope, magnification 40x-600x

- Detect algae, parasites or microorganisms
- Check microbial life and “Aufwuchs” or parasites in skin scrapes or stool samples
- Monocular microscope with AC adapter and built in rechargeable battery Upgradeable for other magnifications
- Four objectives, wide field eyepiece and adjustable condenser, fine focus and coaxial mechanical desk
- Scope of delivery: microscope, AC adapter, dust cover

Art.No.: 5722100

BRESSER Researcher biological microscope

Binocular (5722100) or trinocular (5723100) microscope, magnification 40x-1000x

- Detect algae, parasites or microorganisms
- Check microbial life and “Aufwuchs” or parasites in skin scrapes or stool samples
- Binocular modell for fatigue free work. Adjustable camera tube for convenient documentation
- Four objectives, pair of wide field eyepieces, adjustable condenser, fine focus and coaxial mechanical desk
- Scope of delivery: microscope, AC adapter, power cord, free additional 60x objective

Art.No.: 5723100

Art.No.: 5913650

BRESSER microscope cameras

MikrOkular Full HD (5913650) or MikroCam SP 1.3 (5914131) for documentation

- Record images and video, share it with others and get expert opinion to help with diagnosis
- Replace eyepiece with the camera, or put into the camera tube and connect with Windows PC
- MikrOkular Full HD: Affordable and flexible to use, record images and video
- MikroCam SP 1.3: Professional C-Mount Camera includes powerful software package. Supports measurements which are helpful for a correct diagnosis
- Scope of delivery: Camera with adapters to 23.2mm, 30.0mm and 30.5mm. USB cable, Software CD compatible with Win 7/8/10

Art.No.: 5914131

Art.No.: 5942500

BRESSER Carry case for microscopes

For Erudit DLX and Researcher Bino / Trino microscopes

- Store and transport the microscope and accessories
- Erudit DLX fits directly inside, to stow away Researcher models, simply remove eyepieces and unscrew camera tube
- Lockable aluminum carry case with preformed foam inlay
- Takes up additional accessories, e.g. other objectives or eyepieces, glass slides, tools
- Scope of delivery: Carry case 410 x 320 x 220 mm

Art.No.: 5912100

Art.No.: 5915100

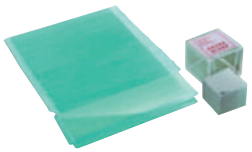
BRESSER microscope accessories

Glass slides / cover glasses and microscope tools “Solingen steel”

- Prepare sample on slide in a drop of water, or swab skin scrape onto slide and put cover glass on
- Consumables and tools are a standard accessory for all BRESSER microscopes
- Glass slides / cover glasses (5916000) or slides with indentation (5916600) for bigger organisms, matching cover glasses 22x22mm (5915100)
- Microscope tools (5912100) includes tweezers, spatula, scalpel, scissors, section lifter and two needles, stainless steel
- Scope of delivery: Set 50 slides / 100 cover glasses; 50 slides with indentation; 100 cover glasses 22x22mm; Tool set: 7 tools in leatherette pouch

Art.No.: 5916000

Art.No.: 5916600



BRESSER microscopy show room

Fascination terraristic

MADAGASCAR

RYUKYU, JAPAN

VENEZUELA

GALAPAGOS

COSTA RICA

AMAZONAS

VIETNAM

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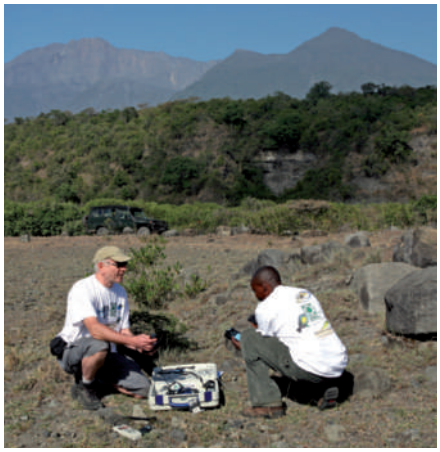
Terrarientypen
Types of terrariums
Planung
Planning
Installation & Technik
Installation & technology
Einrichtung
Setup
Terrarienbewohner
Terrarium dwellers
Pflege
Maintenance

JBL

Forward thinking
Reliable
Loyal to specialist retailers

Joachim Böhme founded the company, JBL, in Ludwigshafen in 1960. Over a period of 60 years, the small family business has developed into one of the leading suppliers of the aquarium, terrarium and pond trade.
Today JBL exports to over 65 countries and, with over 1000 articles, has one of the largest ranges of aquarium products in the world.
In the plant Neuhofen/Pfalz, where the expanding company has been located since 1984, production is focused on fish food and water care products.

We kindly ask you for environmental reasons to pass the catalogue to other interested parties if you don't need this catalogue anymore. This way you help to save raw materials.



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