

Local Habitat

Weltevreë[®]



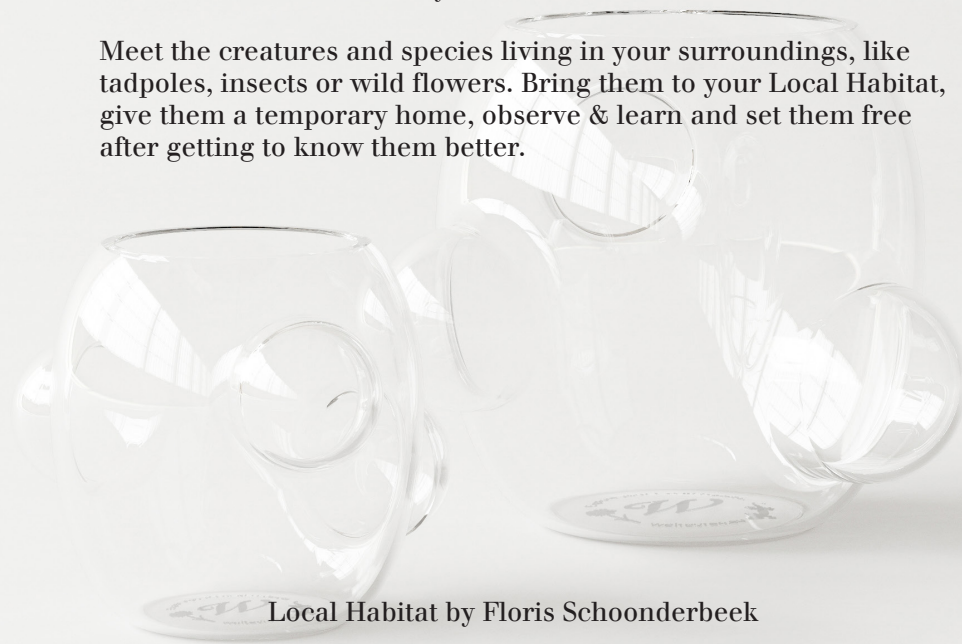


local habitat event @De Kleine Campus, Arnhem, May 2018

“The more you know,
the more you care.”

Research dome - discover your local habitat

Meet the creatures and species living in your surroundings, like tadpoles, insects or wild flowers. Bring them to your Local Habitat, give them a temporary home, observe & learn and set them free after getting to know them better.



Local Habitat by Floris Schoonderbeek



local habitat event @ De Kleine Campus, Arnhem May 2018



This booklet was created with the help of biologist Arie van der Meijden.

Starting from a very young age, Arie has always been fascinated by the tiny creatures that make our world livable. He received his master's degree at the University of Wageningen and his PhD in Evolutionary Biology at the University of Konstanz in Germany.

His area of research varies from creatures like beetles and scorpions, to snakes and giant tortoises. Passionate about science divulgation and popularization, Arie's mission is to share his appreciation for the natural world.



local habitat event @De Kleine Campus, Arnhem May 2018

RESPONSIBLE OBSERVATION

DITCHES, DYKES, PONDS & PUDDLES

- Dragonfly and damselfly larvae
- Cleaning Crustaceans: Daphnia and Copepods
- Swimming bugs
- Great Ramshorn
- Worms

MEADOW LIFE

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- Caterpillars
- Grasshoppers

BACKYARD ADVENTURES

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DIMENSIONS AND SPECIFICATIONS



local habitat event @De Kleine Campus, Arnhem May 2018

“Meet your neighbours.”

Responsible Observation

Tips and tricks for your expeditions and observations;

The Local Habitat’s shape magnifies your view, and allows you to observe the plants and animals inside from different angles. The magnifying effect works best when the Local Habitat is filled with water, but you can also use it to observe small land creatures.

You can make the observations from the comfort of your own home. Do take the needs of your catch into account. For instance, if it is much colder outside than inside, keep the Local Habitat in a cool place in the room. Never place it in direct sunlight, or over a source of heating.

For land animals, water must be provided with some wet cotton. This allows small creatures to drink, while avoiding the risk of drowning in a water dish. For land animals, it is recommended to put some of the soil and plants/dead leaves/branches in the Local Habitat.

For water animals, live water plants provide living space and oxygen during your observation period.

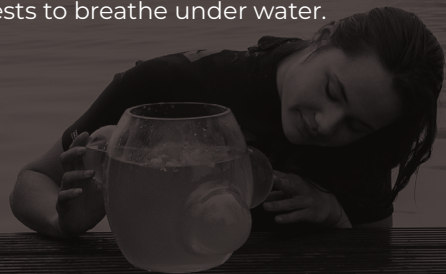
You will be amazed how much life teems in each pond and ditch. To best observe this diversity, bring your Local Habitat with you on your expedition, and fill it with the local water. Alternatively, bring a bucket of water to fill the Local Habitat at home.

Some of the smallest creatures that you won't be able to catch in a net will be present in the water. For larger creatures, you can use a sturdy dipnet with a fine mesh. Move the dipnet through the water in one steady motion, preferably close to water plants. Be careful not to scoop up the mud. Inspect the content of the dipnet briefly (remove fish, frogs and newts), and then invert the net into the water of the Local Habitat. This will allow fragile and small creatures that are difficult to spot in the net, to drift into the water and reveal themselves.

Most aquatic creatures like to have a few green water plants in their environment. You will see tiny bubbles of pure oxygen forming on the water plants. This will allow your temporary guests to breathe under water.

1.

DITCHES, DYKES, POOLS & PUDDLES





Dragonfly and Damselfly larvae

What are they?

Many insects start their life as larvae in the water. Dragonflies, damselflies, mayflies and mosquitos for instance. The largest of these are the dragonfly larvae, and the more slender damselfly larvae. These ancient aerial acrobats already existed long before the dinosaurs!

What do they do?

Dragonfly and damselfly larvae spend several years in the water before they become the beautiful winged insects we know so well. These carnivorous hunters walk around on the bottom, and eat other small creatures, even including small fish!

Why are they important?

By eating their larvae, dragonfly and damselfly larvae are important in controlling the populations of other insects, such as mayflies and mosquitos.

What to watch for

Dragonfly larvae have a “mask” that shoots from under their head to capture their prey! Larger dragonflies larvae can “jet” through the water, by squirting water from their anus.

A peculiar superpower...

Eats and needs.

Since these larvae are voracious carnivores, its best to not keep too many together, as they will start eating each other. Although it may take up to three years, each larva must eventually become a spectacular winged adult. To do that, they must be able to climb out of the water. Place a stick or reed in the water to allow the larva to climb above the water surface and turn into a winged dragonfly or damselfly.

Recommended observation time.

These larvae can be kept quite well in the Research Dome, but we recommend to release them after one or two weeks at most.





Cleaning Crustaceans: Daphnia and Copepods

What are they?

By taking the water from the pond or ditch, you may have already captured some of these tiny crustaceans. These very small relatives of crabs, lobsters and shrimp swim through the water in tiny jerks. You can recognize each by its swimming style- Daphnia “jump” up and sink back down, resulting in a vertical zigzag motion. Their jumpy way of swimming has earned Daphnia their common name of “water fleas”. The Copepods move on a relatively straight line, but in fast little jerks.

What do they do?

Daphnia and copepods swim and eat algae and floating debris. They only have one eye but since they have a transparent body, they can see light coming from all directions.

Why are they important?

Both Daphnia and Copepods are very important in fresh-water ecosystems, as they clean the water. They control the algae that could turn a healthy pond into a green soup. They are also eaten by many other animals, and are the favorite food of many young fish.

What to watch for.

You can often see the green algae inside the body of the Daphnia. Their little swimming “arms” are actually their antennae! Copepods can carry two little sacks on the sides of their tails. These contain the eggs. To see these tiny details, make sure you use the magnifying parts of your Research Dome.

Eats and needs.

They eat microscopic algae that float in the water.

Recommended observation time.

These tiny animals can reproduce fast, outstripping the algae food supply. To avoid famine or lack of oxygen, release them when there are too many (of them) inside the bowl!





Swimming bugs

What are they?

True bugs are insects with sucking mouthparts. Although most live on land, there are several species that swim in fresh water, such as backswimmers and water boatmen. There are also many other interesting groups of water bugs, but these two are most commonly found.

What do they do?

The backswimmers are larger insects that hang below the water surface, and rapidly dive with a few strokes from their oar-like legs when disturbed. As their name implies, they swim upside-down, with their legs up. The water boatmen are much smaller, swim right-side up, and usually rest by hanging on to water plants and debris. (see photo)

Why are they important?

Both species are important as food for other organisms, such as fish and newts.

What to watch for.

They breathe under water by trapping a thin film of air in the hairs on their body. This silvery film allows them to get oxygen from the water, although they occasionally need to come up to replace the air film. The backswimmers can deliver a painful bite by piercing the skin with their mouthparts.

Eats and needs.

The backswimmers are predators that eat other small creatures, like mosquito larvae, while the water boatmen feed on plants.

Recommended observation time.

If they feel that the environment is not good for them, they will fly out of the water in search for a better place. That's why we recommend observing these insects for one or two days at most.





Great Ramshorn Great pond snail

What are they?

There are several groups of snails that live in the water. Most commonly found are the Great Pond Snail (*Lymnaea stagnalis*) and the Great Ramshorn (*Planorbarius corneus*).

What do they do?

Freshwater snails eat vegetation and debris. Snails do this by rasping their food with their tongue, which is covered in tiny hard teeth.

Why are they important?

Snails clean up a lot of plant material, and keep the growth of water plants under control.

What to watch for.

You can watch them licking algae from the glass. Since these freshwater snails do not have gills, they need to come up for air. You can see them gulping in the air from a hole near the edge of the opening of the shell. They produce gel-like transparent blobs with tiny eggs inside, from which you can watch the baby snails emerge.

Eats and needs.

Since snails eat plant matter and organic debris, they need some live water plants.

Recommended observation time.

Snails can be kept in the Research Dome as long as you like. Replace about half of the water each week.





Worms

What are they?

Several worm-like creatures live in the water, but the most commonly found are leeches (which are worms!) and flatworms (which are not worms!). Leeches can be over 20 cm long when stretched. Flatworms do not stretch, and are only about 1 cm long.

What do they do?

Leeches are found swimming in a serpentine motion through the water, or move in an inch-worm fashion across the substrate by using a front- and a rear sucker. Flatworms move slowly and steadily across the substrate without changing shape.

Why are they important?

Leeches are parasites on fish and other larger animals, but can also hunt and eat smaller creatures. Flatworms eat small organic materials.

What to watch for.

Leeches can stretch and contract spectacularly. Flatworms have tiny eyes at the front edge of their body.

Eats and needs.

Flatworms will eat any organic debris, and do not need specific feeding. Leeches can go without food for more than a year.

Recommended observation time.

Flatworms can be kept indefinitely. We recommend observing leeches for up to several weeks.



Tall grass, particularly when it is mixed with other species of plants, can contain a lot of life. You can get a glimpse of this diversity by sweeping the grass with a net with a very fine mesh. Small creatures will be knocked off their perch, and fall into the net. You can then shake the content of the net into the Local Habitat Research Dome.

If you do not have a net, you can get a similar selection of insects by holding an upturned umbrella under the branch of a tree, and shaking the branch vigorously. The insects will fall into the umbrella, and can easily be transferred to the Local Habitat.

To avoid your catch spreading throughout the house, first let the flying insects escape outside. Non-flying insects can climb glass with their clever sticky feet. You can keep them inside the Local Habitat by rubbing a 1-2cm broad band of Vaseline inside the upper rim.

Before placing your catch in the research dome, make sure you put a little soil inside, some plants as desired, and maybe some sticks or dead leaves as a hiding place. Water should be provided as wet cotton to avoid drowning your study objects in a water dish.

2.

MEADOW LIFE



Beetles

What are they?

Most easily spotted are the many small beetles. You will find ladybirds, leaf beetles and many other types. Beetles are insects. The group of beetles is the most diverse group of animals in the world, with more than 400.000 species.

What do they do?

Beetles are incredibly diverse, and so are their habits. There are both herbivorous and carnivorous beetles. Ladybirds for instance, are mostly carnivores that eat aphids. Beetles are always adults. Each beetle came from a larva with a very different lifestyle.

Why are they important?

That depends on the species, but through their incredible diversity, beetles perform so many roles in the ecosystems they inhabit, that they are essential.

What to watch for.

Ladybirds have red and/or yellow warning colors. This warns any animals that try to eat them that they can spew an incredibly bitter tasting liquid. If you pick one up, it may spit this orange or yellow liquid on your hand.

Eats and needs.

This depends on the species of beetle.

Recommended observation time.

Since each species has its needs, we cannot tell you here. We recommend observing beetles for a few hours at most.





True bugs

What are they?

True bugs are a type of insect with piercing and sucking mouthparts. They often look a little like a beetle.

What do they do?

True bugs use their sucking mouthparts to extract juices from plants, although some exist that are predatory and even parasitic. Most of the species in the grass will be of the plant-sucking type. You can see their “sucking straw” below their head.

Why are they important?

Since many live off plants, a few species are considered pests for crop plants. However, most bugs only care for very specific species of plants, and the ones you caught today are likely grass or weed specialists.

What to watch for.

Or what to smell for! Many true bugs emit a defensive odor when disturbed, which smells distinctly plant-like.

Eats and needs.

They eat plant juices, so they need live plants, often a very specific species.

Recommended observation time.

If you notice that they are feeding on the plants on the plants inside your Research Dome, you can keep them for a few days. Otherwise, we recommend releasing all your meadow catch after at most one day.





Spiders

What are they?

Spiders are not insects, but arachnids. Like all arachnids, spiders have 4 pairs of walking legs.

What do they do?

All spiders are predators of small animals such as insects. How they catch them can be quite different, depending on the type of spider. Some build webs, like the familiar orb-webs, but others build more cobweb-like webs. There are many different types and shapes of spiderweb. There are also spiders that catch their prey without a web.

Why are they important?

Spiders may be the most important in controlling the numbers of insects, particularly flying insects like flies and mosquitos.

What to watch for.

A spider placed in a new environment will start building another web within a day or so. What kind of web will your spider weave? A hammock, an orb-web? Something else, or no web at all?

Eats and needs.

Spiders eat smaller creatures. To build a web, they need some support, such as branches.

Recommended observation time.

You can keep a single spider for several weeks, as long as you provide it with some insects to eat. We do not recommend keeping several spiders together, as they will soon eat each other.





Caterpillars

What are they?

Caterpillars are the larvae of moths and butterflies. However, there are some other larvae that can be mistaken for caterpillars, such as the larvae of sawflies and hoverflies.

What do they do?

The only goal of the caterpillar is to grow quickly. They are little eating machines that mostly eat plants.

Why are they important?

Caterpillars are an important food source, for instance for birds. And they turn into lovely butterflies of course!

What to watch for.

Caterpillars are insects, and therefore only have 6 real legs. Those are the thin legs at the front of the caterpillar. The thick sticky legs in the back are not really legs, but a kind of body outgrowths.

Eats and needs.

Caterpillars usually are specialized in eating one or a few species of plants. If you find a caterpillar on a particular plant, chances are that that is its food.

Recommended observation time.

If you can identify the food plant of the caterpillar, you can keep them until they pupate. Just feed them fresh leaves every day. It is usually best for the pupa to hang, so that the butterfly can hang down to stretch its wings, once it hatches. The butterfly should be released as soon as possible, so take a picture and say goodbye.





Grasshoppers

What are they?

Grasshoppers are insects that mostly eat plants. They can make spectacular jumps to escape danger. They are divided into two main groups: those with long antennae, and those with short antennae. The former group also includes the crickets.

What do they do?

Grasshoppers eat plants and many can make a sound (stridulation)

Why are they important?

Grasshoppers eat a lot of plants, are an important food source for other animals themselves

What to watch for.

Grasshoppers with long antennae mostly make sound by rubbing their wings together, while those with short antennae mostly make a sound by rubbing their legs against their wings. Did you know that the ears of grasshoppers are situated in their front legs?

Eats and needs.

They eat various plants.

Recommended observation time.

Grasshoppers can be sensitive to humidity, or lack thereof. We recommend observing grasshoppers for no more than a few hours.



You may know your back yard like.. well.. your own back yard, but there may be some creatures living there that you may not know so well. So why not go on expedition in the Great Outdoors behind the house, and invite some of them inside?

To capture the creatures that live there, you don't need any equipment, just a good eye. If you have large bushes or trees in your back yard, you can alternatively get a selection of insects by holding an upturned umbrella under the branch of a tree, and shaking the branch vigorously. The insects will fall into the umbrella, and can easily be transferred to the Research Dome.

Before placing your catch in the research dome, make sure you put a little soil inside, some plants as desired, and maybe some sticks or dead leafs as a hiding place. Water should be provided as wet cotton to avoid drowning your study objects in a water dish. Escape can be avoided by applying a 1-2 cm border of Vaseline along the inside of the opening of the Research Dome.

3.

BACKYARD ADVENTURES



Snails and Slugs

What are they?

You may not like what they do to your roses, but snails and slugs are the kind of animals that can keep biologists occupied for a lifetime. Their love life is particularly complicated. Snails and slugs belong to the same large group as oysters and octopus, the molluscs.

What do they do?

Most snails and slugs are herbivorous, although they do sometimes eat carrion. The snails and slugs in your back yard all have a lung to breathe with, and you can see the opening of it just inside the opening of the shell. In slugs, this opening is even more apparent, and lies on the back.

Why are they important?

Not only are they a food source for humans and other animals, but many creatures depend on snail shells for protection. For instance, some spiders only lay their eggs in a snail shell.

What to watch for.

The tongue of a snail is covered with hard little teeth. These are made of one of the hardest materials that nature can make. You can sometimes see it come out when they move across the glass. What you can certainly see as the snail moves along the glass, are the waves of contraction that move forward across the foot. These waves of muscle contraction, combined with a special slime, allow the snail or slug to move forward. You can tell if a snail is fully grown by the rim of the opening of the shell. If the rim is sharp, the snail is still growing. If it is rounded (and often darker), your snail is an adult and will not grow more. An adult garden snail is at least 2-3 years old.

Eats and needs.

Snails and slugs are fairly indiscriminate herbivores, and it won't take you long to find out which leaves they prefer.

Recommended observation time.

We recommend keeping snails and slugs for days to weeks, but the top must be covered to prevent escape (no amount of Vaseline can stop them!) and dehydration.





Spiders

What are they?

Spiders are not insects, but arachnids. Like all arachnids, spiders have 4 pairs of walking legs.

What do they do?

There are probably several types of spiders in your back yard. Some make impressive orb webs, while some disturbingly large ones live under the garden equipment out by the shed. Most spiders in your garden however, are tiny, and live their entire lives catching mosquitos and other unwelcome insects.

Why are they important?

Spiders are the most important controllers of insect populations.

What to watch for.

That depends on what kind of spider you put in the Research Dome. The web spiders can be observed making their web, and you can then launch a hapless insect into the web, to observe how the spider wraps its prey, and moves it to another place in the web to eat it. If you go for the monster spider from the shed, it will construct a simple sheet web, and catch any insect that comes too close.

Eats and needs.

Spiders only eat insects and other small creatures, including other spiders. Best to keep only one spider at a time. They all need some support to build their webs, like a few branches or a plant.

Recommended observation time.

Spiders can be kept indefinitely, although some of the better web-spinners can get past the Vaseline border by letting a silk thread drift in the air, and may then leave you of their own accord.





Woodlice

What are they?

Woodlice are actually crustaceans. That means they are related to crabs, lobsters and shrimp.

What do they do?

Woodlice live from organic materials, mostly plant matter. Most species live in humid environments.

Why are they important?

Like worms, woodlice turn the soil and digest plant matter. Although they occasionally eat fruit, they are generally considered beneficial to the garden.

What to watch for.

Female woodlice carry their eggs, and later their young, in a little pouch on their belly. Tiny little white woodlice are released from the pouch when they are ready to face the world.

Eats and needs.

Plant and animal matter. Dead leaves and compost are their favorite food.

Recommended observation time.

The many varied and colorful species of woodlouse are actually popular as pets. They are extremely easy to keep and breed indefinitely. You may consider covering the opening of the Research Dome to conserve moisture inside.





Earwigs

What are they?

Earwigs are insects. They do not crawl into your ear, and definitely don't wear wigs.

What do they do?

Earwigs eat soft parts of plants, and do so mostly at night. They are special among insects in that they take care of their young for a long time.

Why are they important?

They are of particular interest to biologists due to their interesting love-life and family-life.

What to watch for.

You can tell the males from the females by the shape of their "pincers"; The males have curved pincers, while those of the females are straighter.

Eats and needs.

Earwigs eat fruit and soft parts of plants, such as flowers. They are sensitive to dehydration, so always provide wet cotton.

Recommended observation time.

Earwigs can be kept in the Research Dome indefinitely, if soil and humidity is provided.





Harvestmen

What are they?

Harvestmen or daddy longlegs are not spiders! Spiders have a body that consists of a front, and a rear part, while the body of harvestmen consists of only one part. Sometimes the thin spiders that live inside the house are also called daddy longlegs, but those are spiders (Pholcidae). Harvestmen need too much humidity to survive inside the house.

What do they do?

Harvestmen eat small animals, such as insects and snails, but also eat dead animals, and even some plant matter. Some harvestmen are specialized in eating snails.

Why are they important?

Harvestmen are arachnids with a unique lifestyle.

What to watch for.

It is fun to feed harvestmen with small bits of food, such as a little meat or dairy product. They rapidly find the food by waving their long front legs, with which they can smell, through the air.

Eats and needs.

Many species eat (dead) insects, but some are specialist predators of snails. Harvestmen are quite sensitive to dehydration. They can also walk over the Vaseline border, so it is recommended to cover the Research Dome.

Recommended observation time.

Due to their sensitivity to dehydration, and possible food specialization (depending on the species), we recommend limiting the observation time of harvestmen to a few days.



The Local Habitat, research dome, will allow you to observe the creatures living all around you. We hope you will come to appreciate their beauty and remarkable diversity. To make sure that your exploration happens responsibly, here are a few important general pointers:

DO's

Do check with local wildlife and environmental organizations if you are allowed to catch or pick up certain species.

Do put insects, spiders and snails in the research dome to study them, and release them back where they came from when you are done.

Do try to minimize your impact on the environment during your expeditions.

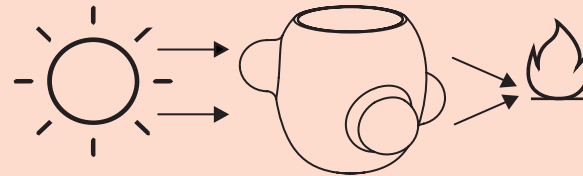
DON'Ts

Don't put vertebrates (fish, frogs, newts etc.) in the Local Habitat. The bent glass disorients them, which leads to stress. (this is not a fishbowl)

Don't go on expedition in protected or fragile areas.

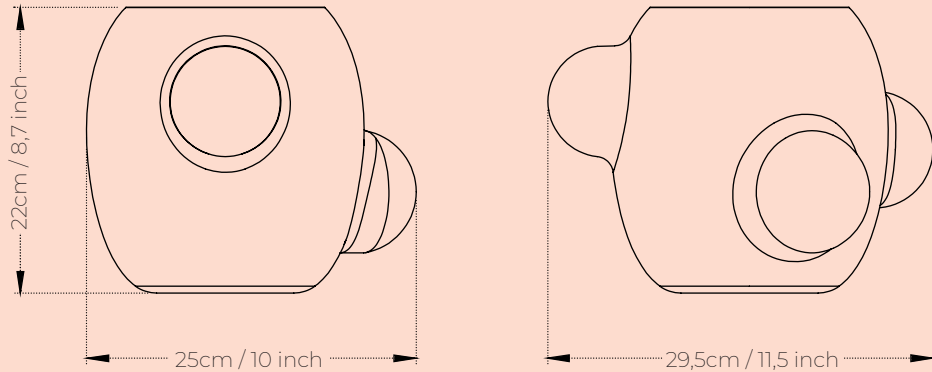
WARNING

Placing the Local Habitat in direct sunlight can cause a fire. The curved glass may help your observation, but it also concentrates the sunlight, making things too hot both inside and outside of the local habitat.



Never leave children unattended with the local habitat. The vase is made of glass and this could cause serious harm if broken.

Dimensions & Specifications



Local Habitat

Designer

Floris Schoonderbeek

Material

Soda-lime glass

Dimensions

Length 29,5cm / 11,5 inch

Width 25 cm / 10 inch

Height 22 cm / 8,7 inch

Weight

1,5 kg / 3,5 lbs

Delivery

In a box (38 x 29 x 36 cm)

Maintenance

Clean the local habitat with water and soap or with a special glass cleaner and a dry towel. Do not put the local habitat in the dishwasher.

Warranty

Thank you for your purchase.

Welteevree delivers quality

If you encounter something wrong with your product that is caused by a manufacturer's defect, we have a standard 1-year warranty.

Conditions

The customer can not claim the warranty for damages to the product when:

- a. the damage is the result of normal wear and tear.
- b. the damage is the result of misuse.
- c. the product is improperly maintained.
- d. the damage is the result of modifications and repairs by the customer or by third unprofessional parties.
- e. the damage is caused by fire, lightning, floods, natural disasters and explosions.
- f. the damage is the result of any government regulation regarding the nature or quality of the materials used.

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