

Nature Aquarium information magazine

AQUAJOURNAL

ADA
aqua design amano
JAN.
2012

Special Feature

Driftwood Style

New proposal of expression for driftwood.



LIQUID FERTILIZER SERIES

NATURE AQUARIUM FERTILIZER SYSTEM

To Grow Healthier and Prettier Aquatic plants

The growth of aquatic plants and also the requirements for nutrients change with time in an aquarium environment. It is ideal to add nutrients based on the current condition of the aquarium, without causing excess or shortage. The unique STEP fertilization system of Nature Aquarium is designed for this purpose.

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Fertilization Based on an Aquarium Condition

Green Brighty STEP 1, 2, and 3, which have varying ratios of iron and potassium blended with the base formula of various trace elements, were developed along with this supplementation method so that the liquid nutrients that are added to the aquarium have the proper composition depending on the condition of the aquatic plants. The combination of these and Brighty K, which is specially formulated for potassium addition, comprise the basic nutrient supplementation scheme. The current Green Brighty Series products are formulated with deep sea water rich in natural trace elements, such as potassium, magnesium, and molybdenum, which boosts their effectiveness as liquid fertilizers. Deep sea water, which is the essence of life, contains all the nutrients that living things need. It has a great effect on the abundance of marine phytoplankton and seaweeds. The application of liquid fertilizers in steps, the use of the pump dispenser, and the formulation of deep sea water make up the first method of its kind in the world of liquid fertilizers for aquatic plants. The technology behind these products has been supporting the health and beauty of aquatic plants that are grown in Nature Aquarium.

STEP method is effective for supplying essential nutrient adequately.

A planted aquarium changes as time goes on, and its environment varies as well. ADA's original STEP method supplies essential nutrient adequately according to each condition.

<p>GREEN BRIGHTY STEP 1</p>  <p>Initial setup to 3 months</p>	<p>»»</p>	<p>GREEN BRIGHTY STEP 2</p>  <p>3 months to 1 year</p>	<p>»»</p>	<p>GREEN BRIGHTY STEP 3</p>  <p>After 1 year</p>
<p>It contains trace elements that are essential for plants just planted to establish their roots and grow buds in a good balance, and the new leaf growth.</p>		<p>Iron ingredient especially effective for the prevention of bleaching among other trace elements is contained. It helps to keep the healthy leaf color.</p>		<p>Potassium ingredient is combined to the trace elements with enhanced iron ingredient, and it promotes the plants' growths that have been chronically slowed down.</p>

Liquid additives considering every environmental condition.

		<p>For Sun Plants</p> <p>GREEN BRIGHTY SPECIAL LIGHTS</p> <p>It promotes the growth of Sun plants actively absorbs nutrients such as Riccia or stemmed plants, and supplies nitrogen and phosphorus that tend to lack in aquarium.</p>		<p>Tips</p> <p>Daily supply of potassium BRIGHTY K</p> <p>Use Brighty K along with STEP series as supplying potassium promotes photosynthesis.</p>
		<p>For Shade Plants</p> <p>GREEN BRIGHTY SPECIAL SHADE</p> <p>It is used for an acidic environment with growing Cryptocoryne etc., as it contains potassium in addition to nitrogen and phosphorus.</p>		

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ADA





Contrast well with green color of aquatic plants



The aquascape is an image

NEW

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NATURE AQUARIUM GOODS

New cosmetic sand, La Plata Sand is added to the existing lineups of cosmetic sand series that create a bright and natural ambient in a layout. The white color of La Plata Sand brings out the green color of aquatic plants.

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Unzan stone

NEW

A lava stone with rustic appearance. Its dented surface can hold Wabi-kusa, so you can develop your own way and create a unique layout with Unzan stone.



Kei stone

NEW

A natural stone with the mixture of ochre and red-purple colors. Available in various sizes.



Sado-akadama stone

NEW

A rare raw-stone of Akadama stone from Sado island. It has the intent red color partly on its surface, giving a strong impression to a viewer.

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Naena Waterfall amid Trees Putting out their Buds

The landscape of Naena Waterfall situated in a heavy snowfall area changes dramatically with the coming of spring. In early spring when the thick layer of snow disappears, the deciduous trees burst with fresh, new buds and turn the surrounding mountains red and bright yellow, resembling out-of-season autumn foliage. When the trees grow new buds, we can observe various colors including red, yellow and silver at the tip of the branches spreading out like capillaries. The warm rays of the sun streaming down against the backdrop of Naena Waterfall as it roars with gushing melted snow water made me feel the breath of spring unique to a snow country.

Shooting data /Deardorff 5x7, APO Symmar 180mm, 1/2 sec at f321/3, Velvia 100F 5×7 inch format film

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NEW

Special Feature

DRIFT- WOOD

STYLE

Driftwood is a natural material suitable for producing a natural feel to the layout. Various expressions can be made by different combinations of driftwoods, and using a new type of driftwood can create a totally new expression. The Special Feature of this issue introduces a new-style layout using three types of distinctive driftwoods.

Photographs by Takashi Amano

Text by Masatoshi Abe/Tsuyoshi Oiwa

New Style Driftwood Expressions

B Layout material
RANCH WOOD
■P12



H Layout material
ORN WOOD
■P20

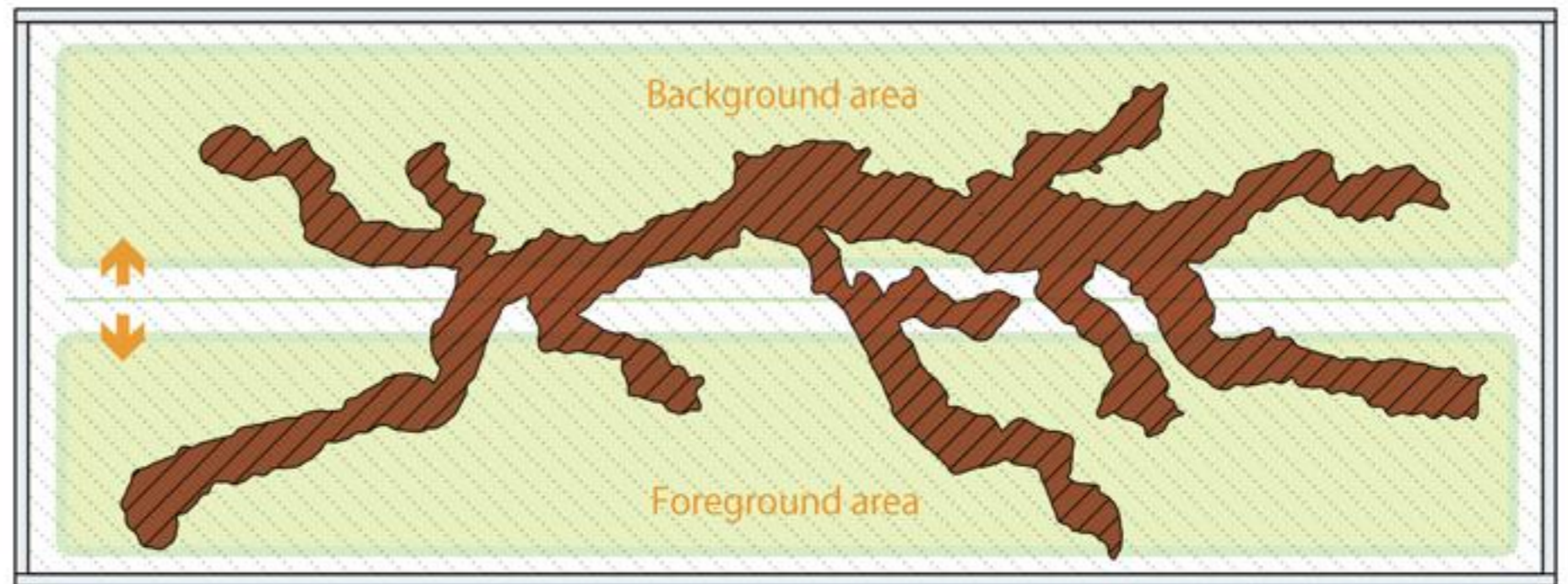


J Layout material
ATI WOOD
■P36



Basic Concept of Driftwood Layout

In planted aquariums, driftwood serves as the framework of the layout and knowing how to place and arrange it is very important in making a composition. However, by comparing Photo 1 which shows driftwood that has just been arranged with Photo 2 which captures the completed aquascape, you can see that only some branch tips, not the entire driftwood, are visible in the layout. This is where driftwood layout differs significantly from Iwagumi layout. For this reason, there is no need to place particular focus on the overall shape of the driftwood as we do when we select the stones for Iwagumi layout. Any undesired points can be covered by epiphytic plants such as ferns and moss and by planting aquatic plants. In view of this, we should pay attention to the shape of the branch tips when selecting driftwood, and focus on making a composition to get the most out of our choice.



Front-Back Position of Driftwoods Determines the Planting Space

We tend to pay attention only to the balance of the arranged driftwoods viewed from the front, but we should also look at their front-back balance viewed from the top of the tank. This is necessary because the front-back position of the driftwoods determines the planting space for the foreground and background. A frequently observed failure is that the driftwood is arranged more towards the front side of the tank, resulting in too narrow a foreground in the aquascape. This problem might not be noticeable when the aquatic plants are just planted. However, once the aquatic plants have grown such an arrangement can easily make the viewers feel the visual pressure from the layout.



Driftwood serves as the Framework of a layout.

Driftwood position determines the direction of the layout.

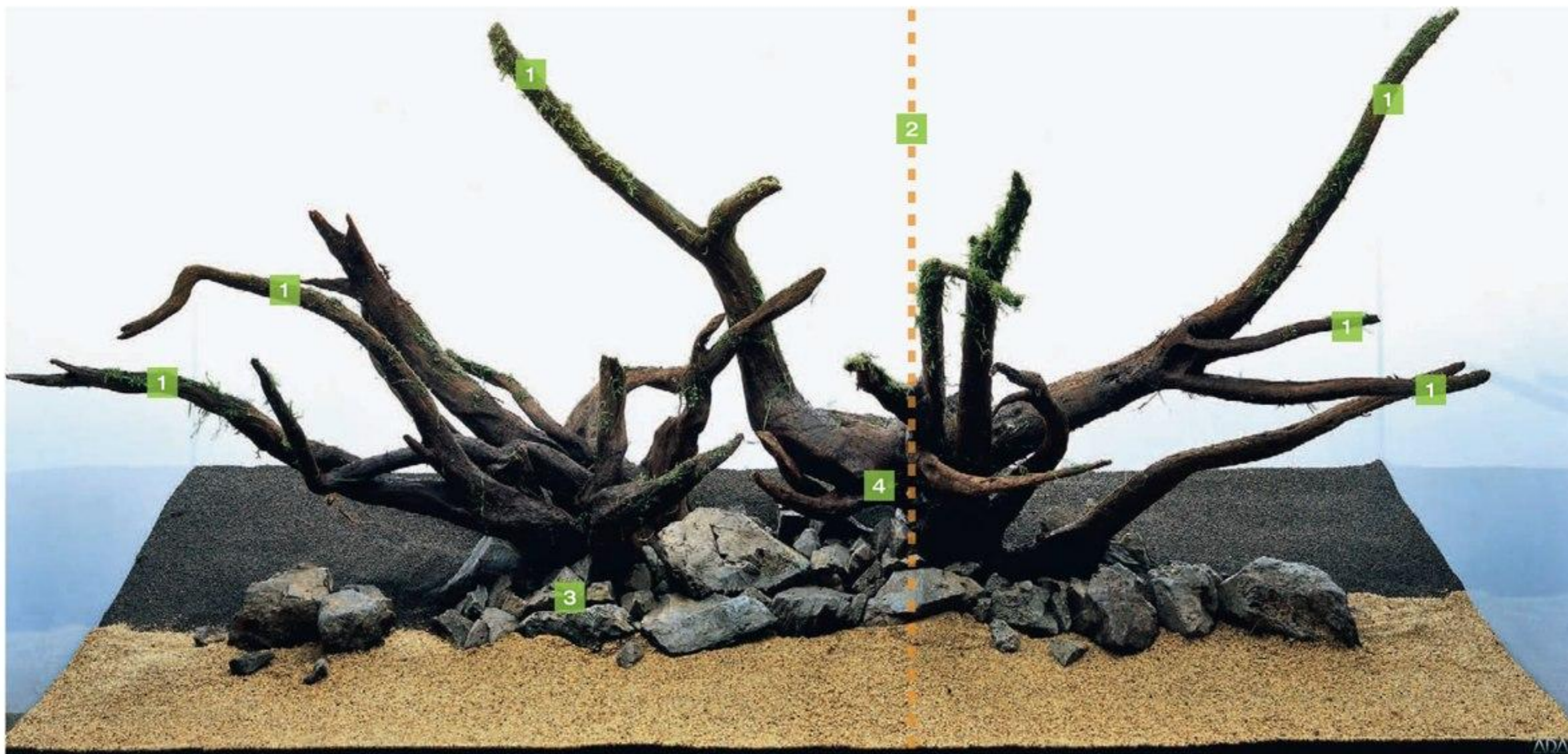


Photo 1

1 Shape of the branch tip is important

When selecting a piece of driftwood, attention should be paid to the shape of the branch tips and how the branches stretch. Arrange the driftwood in such a manner that the well-shaped branches stretch outwards.

2 Determine the main focal point according to the golden ratio

The main focal point should be slightly off-center in the tank according to the Golden Ratio of 1:1.618 so that the aquascape will look more attractive.

3 Use pebbles for adjusting angle and fixing driftwood

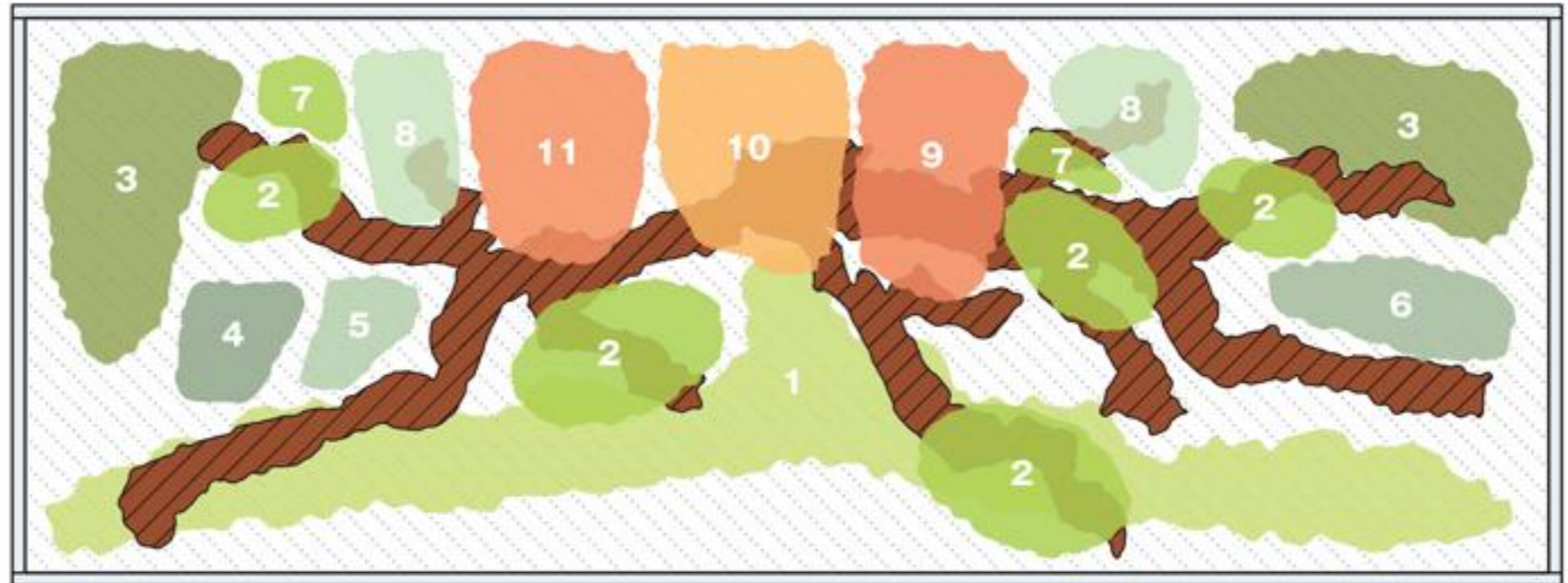
Angle is of particular importance for the arrangement of driftwoods in branch form. The use of pebbles is convenient for fine adjustment of the angle balance and fixing of the driftwood.

4 Lower part of driftwood will be covered and made invisible

Arrange the driftwood to turn its cut edges and unsightly portions down to the bottom side. Awareness of the portion to be concealed will facilitate arrangement of the driftwoods.

First, the basic things to know about production of driftwood layout are explained by taking some actual aquascape works as an example. This knowledge helps you learn how to select driftwood and form a framework.

Once the driftwood has been arranged, the next step is the planting. Basically, the area in front of the driftwood is called the "foreground" while the area behind it is the "background". Short foreground plants, Riccia and cosmetic sands are arranged in the foreground, whereas stem plants are planted mainly in the background. Epiphytic plants such as Microsorium and Bolbitis are attached to the driftwood to produce an attractive "mid-ground". Driftwood serves as the framework of a layout and at the same time, has the role of camouflaging the bottom portion of the stem plants in the background. In addition, unsightly cut edges of the trimmed plants can be less visible by using the framework line created by the driftwood as a guide for the trimming line for stem plants. In a completed aquascape, the presence of driftwood diminishes but it still has an important function as a framework for the layout.



Aquatic plants used

- | | | |
|--|--|--------------------------------|
| 1 : Riccia | 5 : Cryptocoryne pontederifolia | 9 : Rotala Indica |
| 2 : Microsorium Narrow Leaf | 6 : Cryptocoryne lucens | 10 : Ludwigia 'Cuba' |
| 3 : Cryptocoryne wendtii 'Mi Oya' | 7 : Cyperus | 11 : Ammannia latifolia |
| 4 : Cryptocoryne patchii | 8 : Eleocharis vivipara | |

Driftwood with attractive feature on its Branch Tip.

The presence of driftwood itself diminishes but it in turn forms the mid-ground.



Photo 2

5 Branch tip will become a constituent part of the aquascape

As can be seen from the completed aquascape, only branch tips will eventually become a constituent part of the aquascape. Most parts of the driftwood will be covered and become invisible.

6 Beautify the mid-ground with epiphytic aquatic plants

Driftwood serves as a platform for epiphytic plants and forms the aquascape of the mid-ground. Planting aquatic plants in the mid-ground conceals the bottom of the stem plants.

7 Driftwood serves as a guide for trimming the stem plants

Driftwood, which forms the composition of the layout, is consistent with the trimming line of stem plants and therefore serves as a guide for trimming the stem plants.

8 Moss expresses the passing of time

There are two major reasons why willow moss is attached to the driftwood; one is to convey the passing of time and the other is to soften the rough appearance of the driftwood surface.



Branch Wood features a bright-colored surface and multiple numbers of stretching branches (in fact, they are not branches but roots). Here's a driftwood with uniquely-shaped branches.

B

Branch Wood Featuring Attractive Multi-Branching Shape

□ BRANCH WOOD



□ Less branching

This type has relatively little branching for Branch Wood. Combining a few branch woods of this type may be good for creating the layout.



□ **More branching**

Close observation shows the branches are in different sizes. This example has a good balance of branch size and is easy to use for layout. This is the standard type that is the most commonly sold.



□ **Large trunk**

Every Branch Wood has artificial cut edges at its base which should be concealed. Even for this type, primary focus should be placed on the shape of branches as a criterion for selection.

□ **Short branches**

This type of Branch Wood has short branches and a compact look on the whole. Its shape is perfect for attaching epiphytic aquatic plants such as Anubias and Bolbitis.



□ **Long, stretched-out branches**

This is an attractive Branch Wood featuring shapely branches. However, it may be hard to use this type of branch wood for layout as some have linear branches that can divide the view.



□ **Well-shaped branch tips**

Branching is moderate but the overall shape is good with thin, twisted branch tips. Branch wood with such shapely tips is easy for layout.

The most distinctive feature of Branch Wood is its multi-branching shape. The portions we usually regard as long branches are in fact the roots of the wood and therefore have complicated, twisted shapes. Branch Wood is usually collected by cutting the tip or base of its roots. This is why artificial cut edges are observed on each Branch Wood. When selecting Branch Wood, choose the one with well-formed branches. For Branch Wood with less branching, it would be a good idea to combine smaller pieces to make up an adequate number of branches. To make the most of the attractive features of Branch Wood, it is recommended to place the wood with its multi-branching portion facing upwards. Keep in mind that too many branches may give a disorganized impression and require greater maintenance effort.

※ Please note that the "root" of Branch Wood is referred to as "branch" in this issue of Aqua Journal.

The ABCs of Mastering Branch Wood

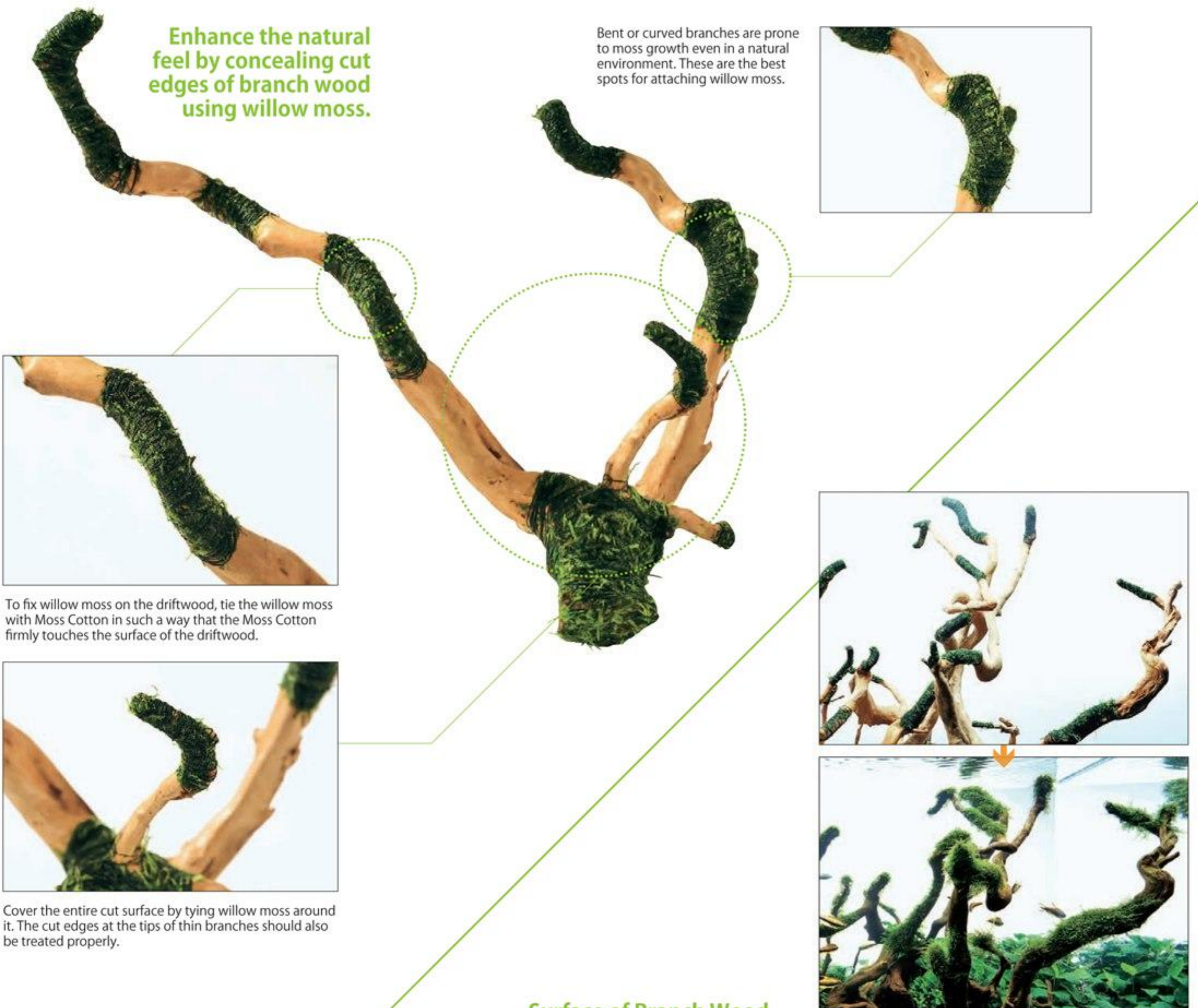
Branch Woods have artificial cut edges on their base portion as well as branch tips. If these cut edges are visible, the natural feel of the layout can be undermined. To avoid this, measures should be taken to conceal the cut edges of the Branch Wood. There are a few ways of doing this. A simple way is to manually break, crush with a tool like pliers, or sharpen the tip with a cutter knife. These measures help give the Branch Wood a natural look. Besides these simple ways, the method recommended by the Aqua Journal editorial staff is to cover the artificial cut edges with willow moss. In this

case, the Branch Wood may look unnatural if willow moss is attached only to the cut edges. So the willow moss should also be attached to some parts of the branches to enhance the natural feel while concealing the unsightly cut edges. ADA's Moss Cotton is recommended for attaching willow moss to the Branch Wood. Moss Cotton, which has a similar color to willow moss, is not noticeable and will naturally biodegrade after the willow moss has rooted to the Branch Wood. Furthermore, Moss Cotton does not break easily but tightly fixes the willow moss on to the Branch Wood, thanks to its higher

twist count than ordinary cotton thread. Trim off the excess willow moss carefully so that the Branch Wood with willow moss will look attractive even right after completion of the layout. Even after being properly attached, the willow moss may easily peel off the smooth Branch Wood surface. In view of this, the scissors to be used for trimming and maintaining willow moss should be the ones designed specifically for trimming aquatic plants such as Pro-Scissors Short and Pro-Scissors Spring.

Enhance the natural feel by concealing cut edges of branch wood using willow moss.

Bent or curved branches are prone to moss growth even in a natural environment. These are the best spots for attaching willow moss.



To fix willow moss on the driftwood, tie the willow moss with Moss Cotton in such a way that the Moss Cotton firmly touches the surface of the driftwood.

Cover the entire cut surface by tying willow moss around it. The cut edges at the tips of thin branches should also be treated properly.

Surface of Branch Wood will turn to a natural color over time.

The above photos show the changes of the Branch Wood with its cut edges and some of its branches attached with willow moss. Trim the willow moss frequently to prevent it from becoming too thick, and to maintain an attractive aquascape.

Branch Wood commonly has well-shaped branches compared to other types of driftwood. They are easy to select and use even for beginners. This section provides notes on the use of Branch Woods.

Notes on handling branch immediately after using them for layout

When using Branch Wood for a layout, there is a point that aquarists must keep in mind. Most new Branch Wood still have buoyancy and float after the tank is filled with water. To avoid this, it is necessary to place a stone on the Branch Wood as a weight before pouring water into the tank in order to suppress the initial buoyancy of the wood. Fortunately, stones can be easily placed between the branches, thanks to the multi-branching shape of the Branch Wood. The Branch Wood will absorb an adequate amount of water and sink properly in a week at the most. Before removing the stone completely from the wood, you should observe the Branch Wood for a while to make sure that it does not float even without the stone.

Another issue that one needs to be careful of is fungal infection. New Branch Wood is almost unseasoned and white cotton-like fungus may grow on its surface in 2-3 days after it is placed in an aquarium. Once fungal infection is observed, the fungus should be removed immediately by

suctioning it with a small hose of about Ø10mm in size. The fungus that cannot be removed by suctioning can easily be got rid of by brushing. Subsequently, change a large amount of tank water to eliminate the removed fungus in the tank. Once the manual removal of the fungus using a hose or brush has been completed, you may add Yamato Numa Ebi (*Caridina Japonica*) and *Otocinclus* to the tank to ensure that the Branch Wood surface is completely fungus free. Fungal infections are usually observed only after immediate completion of the layout and will not become chronic in the planted aquarium. When the Branch Wood is not used for layout immediately after purchase, it should be soaked in water or exposed to rainwater outside so that the above efforts can be reduced to some extent.



Top: Buoyancy of Branch Wood can be controlled by placing stones between the branches. After a few days, slowly remove the stones and check if the wood still floats. Bottom: Suction off the fungus with a hose.

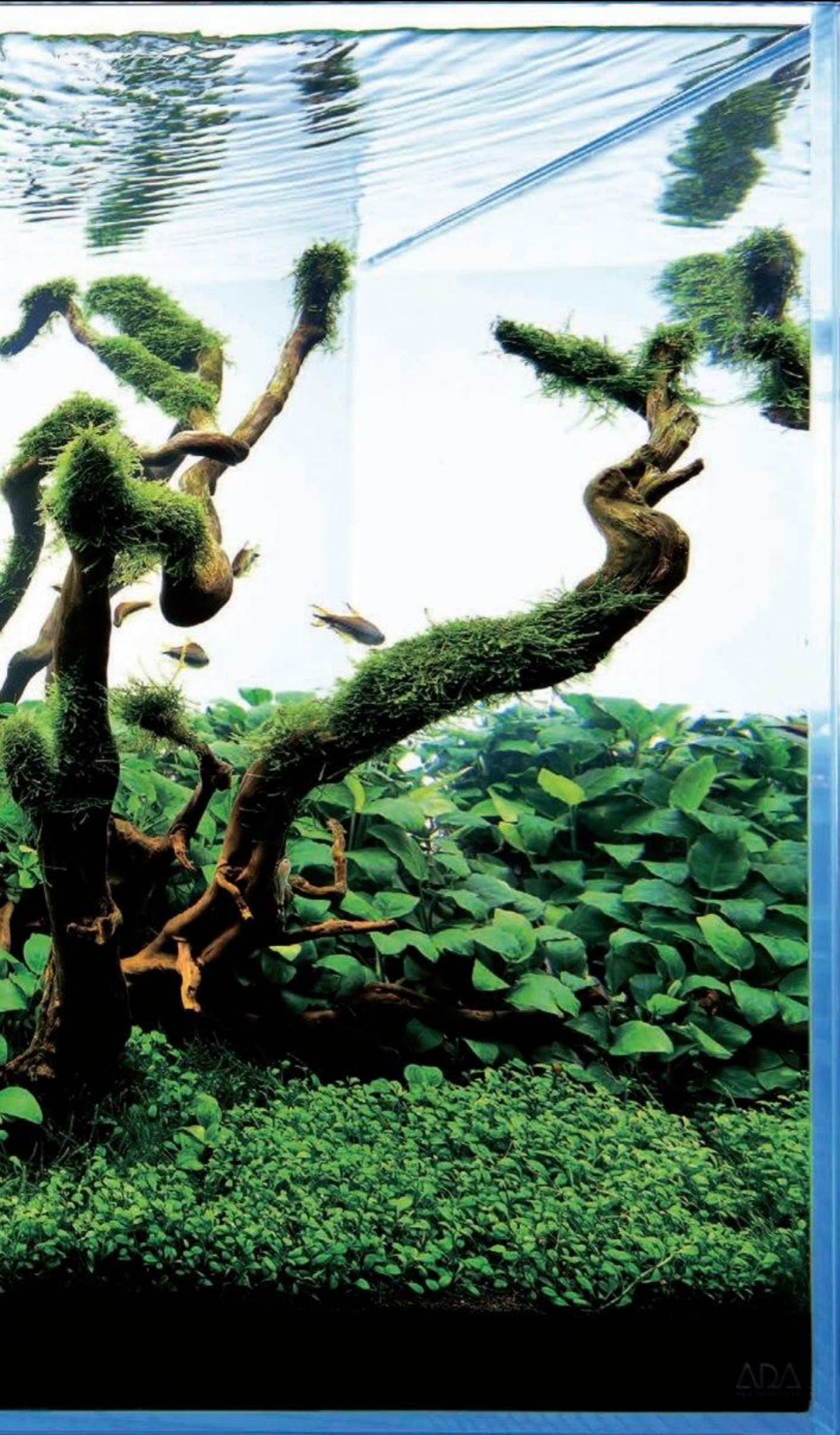
Fresh Branch Wood has a bright beige color. This color is unique to Branch Wood and some may feel it would be a little odd to have such a color in an aquascape layout. However, this beige color is observed only when the Branch Wood is very fresh because the wood will eventually turn to the commonly-known brown as it absorbs water. Branch Wood that has been used for a layout and soaked in water will not turn back to beige even after it is dried but will remain in a natural driftwood color. Used Branch Wood should be placed outdoors and exposed to the rain, rather than kept indoors so that it has a more natural surface color.

B
BRANCH WOOD



A used Branch Wood that has been left outdoors and exposed to the rain. Over time the wood will have a more natural look than a fresh one.





Making the Best of Branch Wood Branches

Branch Wood is a unique and relatively new composition material. Its most distinctive feature is its thin, twisted branches. With its multiple branches stretching out from a single trunk, a single piece of Branch Wood can produce an effect that cannot be achieved by the use of any other type of driftwood without combining several pieces. This layout uses a few pieces of Branch Wood and is finished with a simple planting arrangement in order to highlight the attractive branch shape of the woods. One of the benefits of using Branch Wood is that a natural feel can be produced in the layout just by placing it in the tank.

DATA

Tank	/	Cube Garden W90×D45×H60 (cm)
Lighting system	/	Grand Solar I (NAG-150W-Green) × 3 units for two of 90H tanks Lighting for 10 hours a day
Filtration system	/	Super Jet Filter ES-1200 (Bio Rio, NA Carbon)
Substrate system	/	Aqua Soil – Amazonia, Power Sand Special L, Bacter 100, Clear Super, PENAC W for Aquarium, PENAC P for Plants & Tourmaline BC
CO ₂ system	/	Pollen Glass Large 30Ø – 3 bubbles per second with CO ₂ Beetle Counter (Tower/20 is used)
Air	/	Aeration with Lily Pipe P-4 for 14 hours when lighting is OFF at night
Additives	/	Brighty K & Green Brighty STEP 2
Water change	/	1/3 water change once a week
Water quality	/	Water temperature: 25°C; pH: 6.8; TH: 20mg/ℓ
Fish species	/	<i>Glossostigma elatinoides</i> <i>Anubias barteri</i> var. <i>nana</i> <i>Anubias barteri</i> var. <i>nana</i> “Petite” <i>Anubias barteri</i> var. <i>nana</i> “Yellow Heart” <i>Fontinalis antipyretica</i>
Aquatic plants	/	<i>Nematobrycon palmeri</i> <i>Otocinclus</i> sp. <i>Caridina japonica</i>



An attractive feature of Branch Wood is the shape of its branches. Since this wood has an intrinsically fascinating shape, a simple composition is preferred to a complicated one. Here are some points for layout with the use of Branch Wood.

1 Attach willow moss to the branch tips

Attach willow moss to the branch tips to cover up the cut edges. In addition, attach willow moss to some parts of the branches to enhance the natural feel.

2 Conceal the base with Anubias

Use the three types of Anubias which vary in leaf size, namely, Anubias nana, Anubias nana "yellow heart" and Anubias nana "petit" to allow for variation as well as natural ambience.

3 Plant Glossotigmsma in the foreground

Glossotigmsma is planted in the foreground to offset the rigid impression given by Branch Wood and Anubias. Aquatic plants are deliberately planted in a simple, uncomplicated design for this layout.



The point of layout using Branch Wood is to have a varied density of branches.

B

BRANCH WOOD



A: Depth can be produced by creating a slope on the substrate as shown in the photo.



B: With the Pinsettes (XL), aquatic plants can be planted accurately even near the base of the driftwood which is hardly reachable.



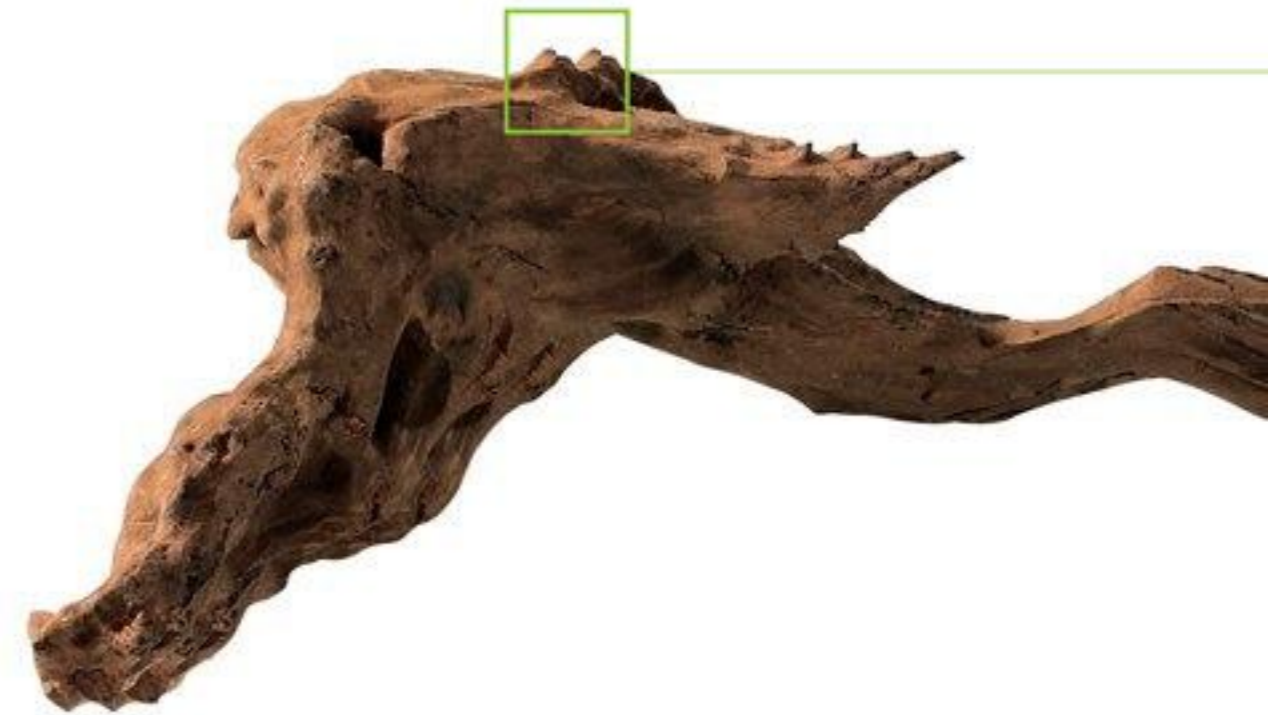
C: Willow moss is planted in the place with the weakest sunlight.

A simple layout is recommended for Branch Wood to make the most of its unique multi-branching shape. Branch Wood should be placed with the branch tip facing upwards. Be careful of the density of the branches as too many dense branches may give a disorganized look. Furthermore, the Branch Wood looks less attractive if its branches are almost symmetrical. For a convex composition as in this example, the density on the right and left sides should differ to shift the main focal point slightly to either side (to the left in this case) in order to achieve a well-balanced aquascape. In this example, the base of the Branch Wood situated at the bottom of the aquascape is concealed by placing the three types of Anubias with different sized leaves at the base of the wood. These Anubias are fixed on small stones before being placed in the tank.



□ **Multiple branching**

Since there are not many Horn Wood with several branches, it would be a good idea to purchase this type of horn wood if you come across it in a shop. When you use it in a standing position, the angle will be important.



□ **Driftwood with a linear portion**

Driftwood having a linear portion can divide the view if you stand it upright in a layout. You may avoid this problem by laying this type of wood flat instead of trying to stand it.



Reddish brown horn wood has a unique textured surface. We would suggest combining several pieces with similar texture.



Horn Wood with its Reddish Brown Surface

□ **HORN WOOD**



□ **Sharp branch tips**

This feature is common to Horn Wood. Make good use of the thin, sharp branch tips in the layout. It is recommended to attach willow moss to the slightly curved portions.



□ **Knob on the edge**

This driftwood looks attractive with its nicely curved branch, but it has a problem of having a knob at the edge. This can be solved by placing the side with the knob downwards.

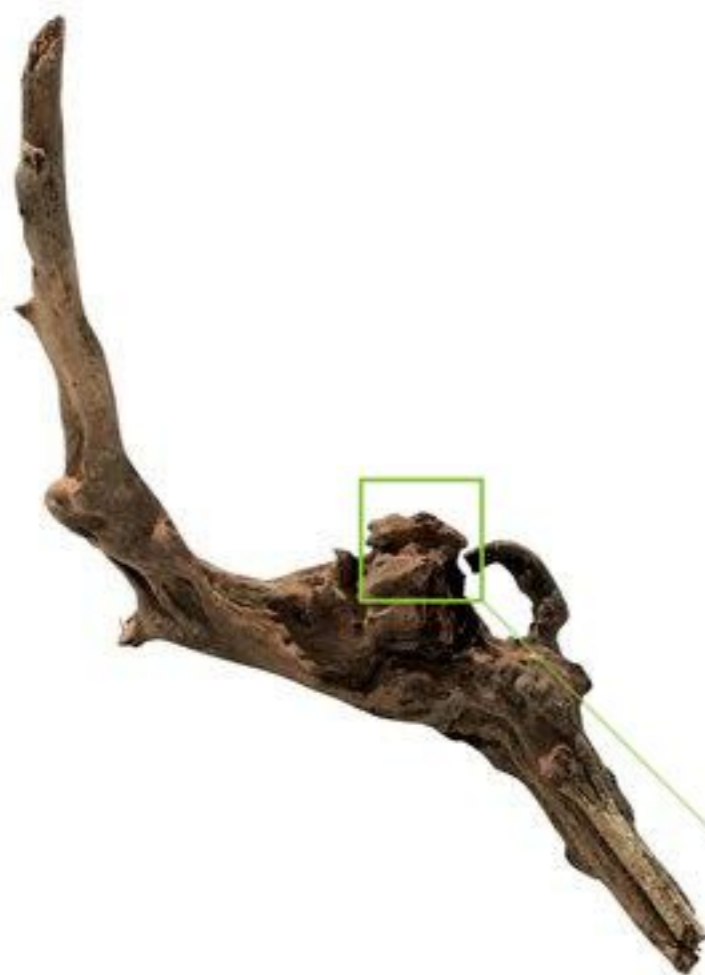


Horn Wood is hard driftwood which has a reddish brown surface. There are no common features in shape but there are in various forms including branching, splitting and blocks. When selecting Horn Wood, it is advisable to focus mainly on the shape of the branch tips except for the block-type wood. Make sure you monitor and control the water quality immediately after a Horn Wood is placed in the layout. Horn Wood contains a high level of tannins and other organic acids which leach organic matter, resulting in yellowing of the water and also a COD (Chemical Oxygen Demand) as high as 8 mg/l. Yellow water caused by tannins and other organic acids* will not affect the fish and aquatic plants, but it is advised to use activated carbon and also change the tank water frequently immediately on completion of the layout.

※ Refer to page 31-32.

□ **Plate-like shape**

If you would like to use this type of driftwood in a layout, it is advisable to attach willow moss or Riccia to it. It would also be good to place this type of wood in an aquarium with small fish.

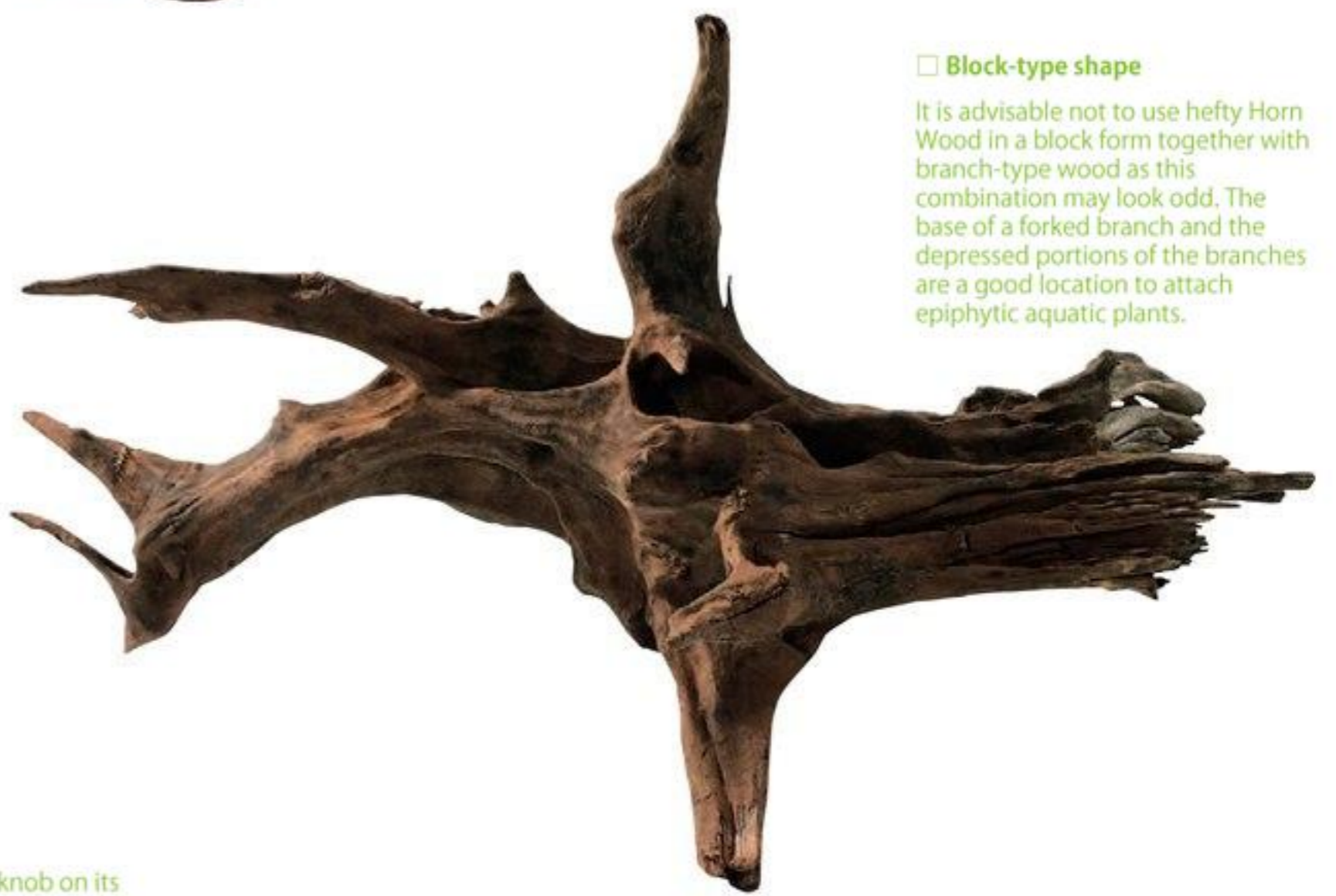


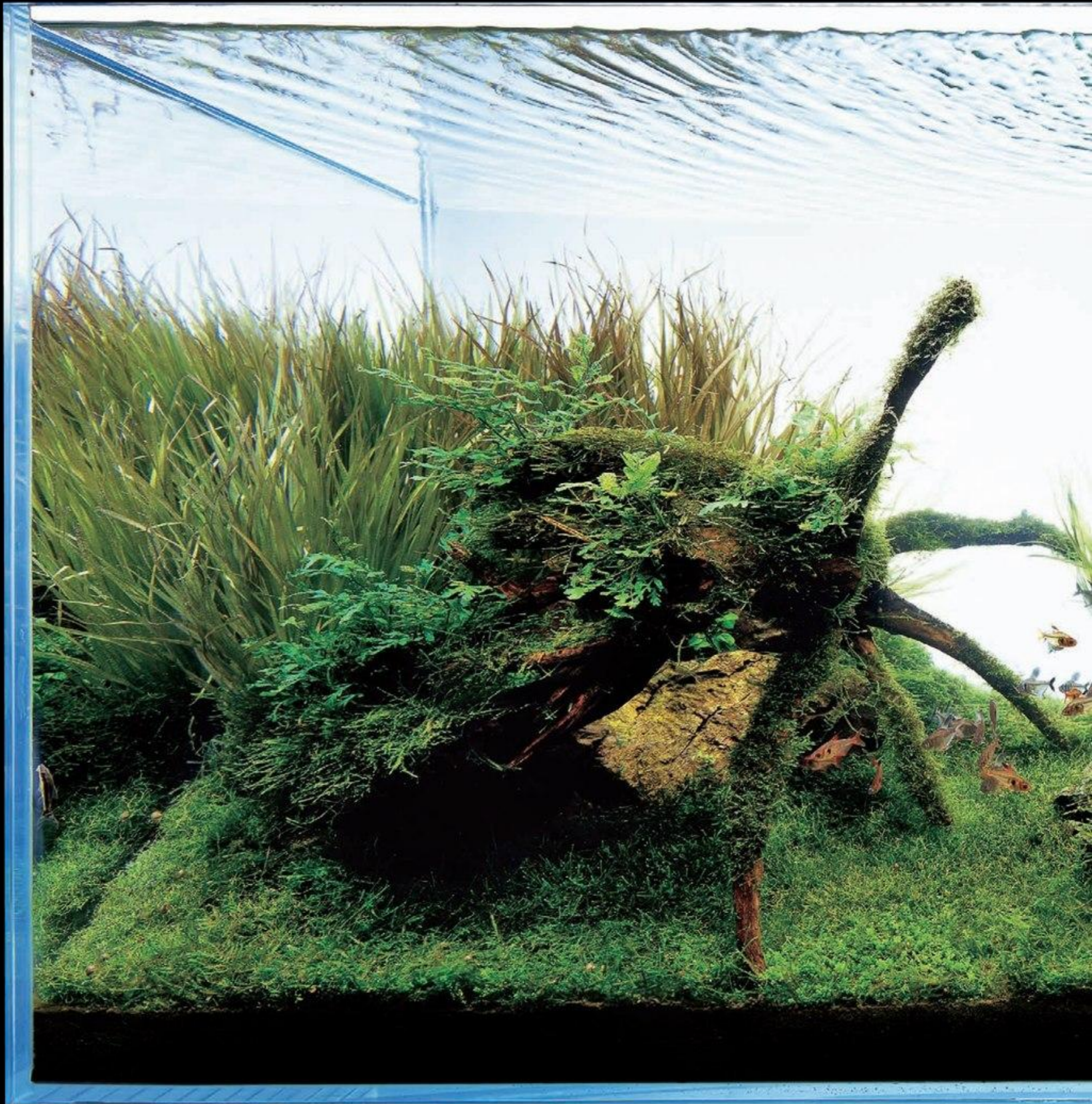
□ **Knob on a wood**

For Horn Wood with a knob on its branch, we suggest attaching aquatic plants such as Microsorium and Bolbitis on to the knob. Learn the technique of covering up the disadvantageous points.

□ **Block-type shape**

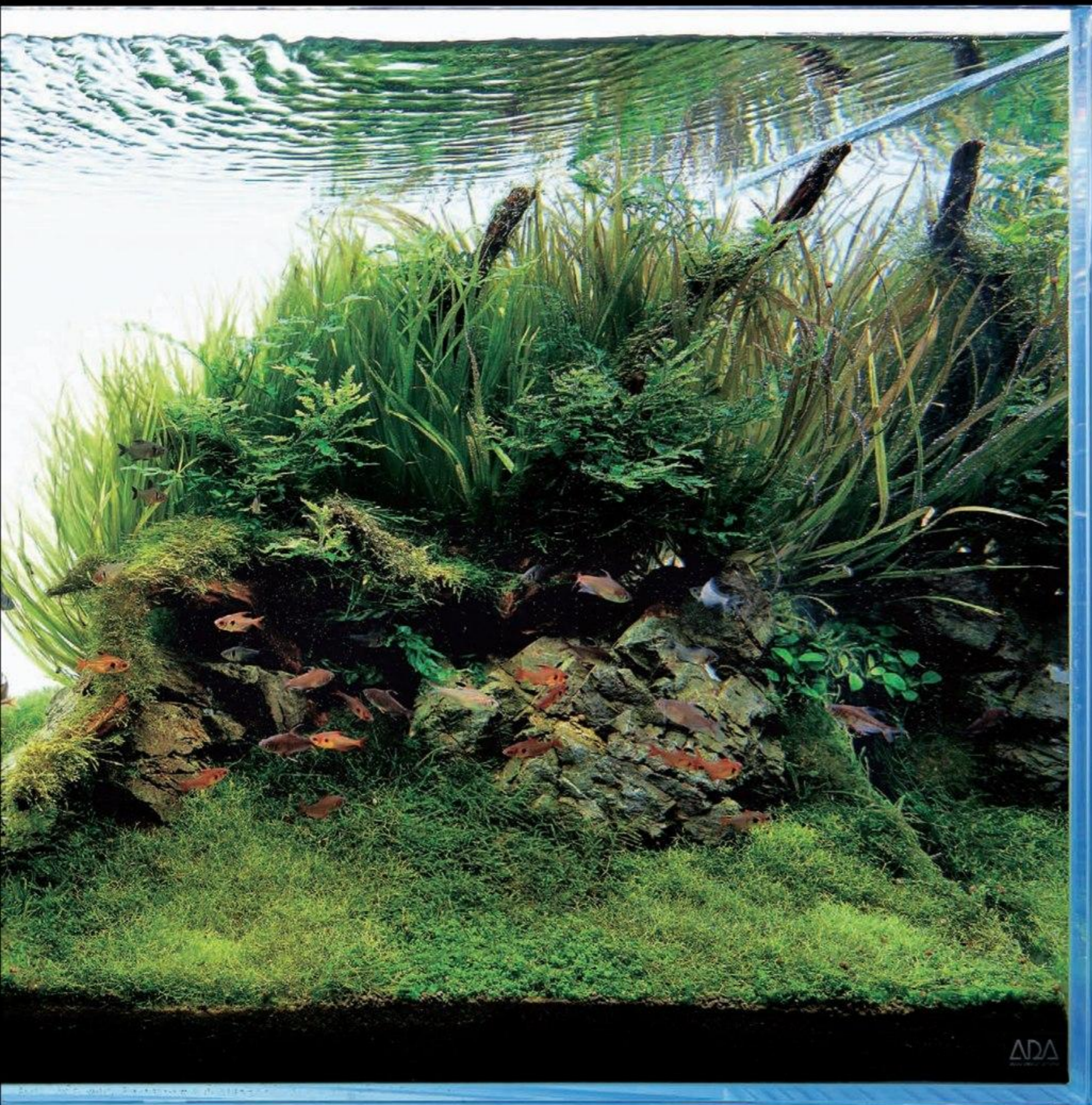
It is advisable not to use hefty Horn Wood in a block form together with branch-type wood as this combination may look odd. The base of a forked branch and the depressed portions of the branches are a good location to attach epiphytic aquatic plants.





Planting in the area that falls under the shadow of the driftwood

The layout using driftwood usually has shady areas with no exposure to sunlight. In this layout, willow moss, a shade plant, is planted in such areas while the sun-loving Riccia and Cuba Pearl Grass are planted in the bright areas exposed to abundant sunlight. Effective use of sun and shade plants according to the environment promotes a natural layout that is ecologically friendly to aquatic plants.



ADA

DATA

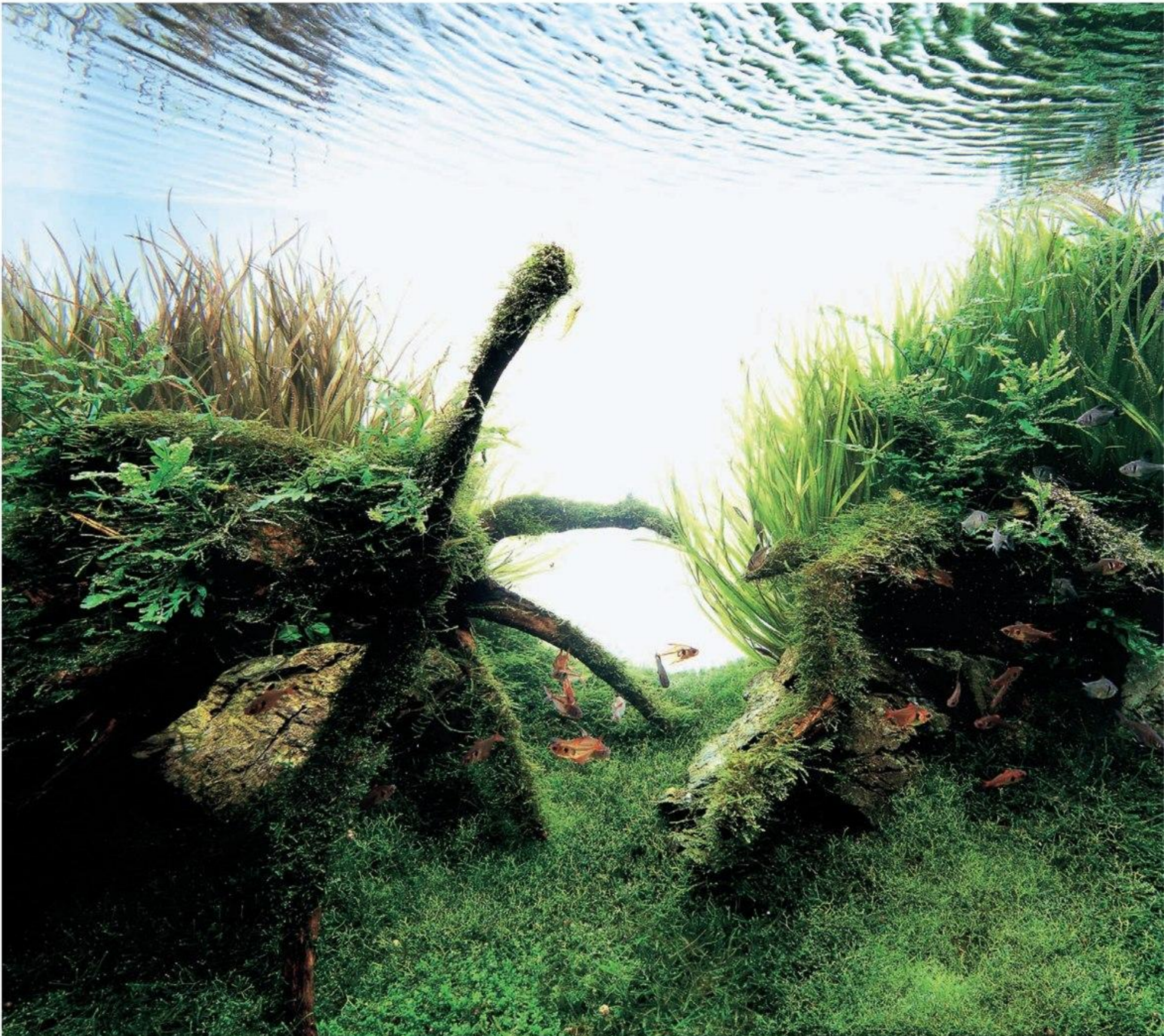
Tank	/	Cube Garden W120×D45×H60 (cm)	CO ₂ system	/	Pollen Glass Beetle 40Ø – 4 bubbles per second with CO ₂ Beetle Counter (Tower/20 is used)	Fish species	/	<i>Blyxa auberti</i> <i>Bolbitis heudelotii</i> <i>Hemianthus callitrichoides</i> “Cuba” <i>Anubias barteri</i> var. <i>nana</i> “Yellow Heart” <i>Riccia fluitans</i> <i>Fontinalis antipyretica</i>
Lighting system	/	Solar I (NAG-150W-Green) ×2 units Lighting for 10 hours a day	Air	/	Aeration with Lily Pipe P-4 for 14 hours when lighting is OFF at night	Aquatic plants	/	<i>Hyphessobrycon sweglesii</i> <i>Megalampodus megalopterus</i> <i>Hyphessobrycon bentosi rosaceus</i> <i>Otocinclus</i> sp. <i>Caridina japonica</i>
Filtration system	/	Super Jet Filter ES-1200 (Bio Rio, NA Carbon)	Additives	/	Brighty K & Green Brighty STEP 2			
Substrate system	/	Aqua Soil – Amazonia, Power Sand Special L, Bacter 100, Clear Super, PENAC W for Aquarium, PENAC P for Plants & Tourmaline BC	Water change	/	1/3 water change once a week			
			Water quality	/	Water temperature: 25°C; pH: 6.8; TH: 20mg/ℓ			

Making the Most of Horn Wood [Vol.1]

Produced by a combination of Mantén stones located on both sides with the Horn Wood, this layout evokes the image of a natural landscape of driftwoods flown from somewhere which are caught in stones. Part of the fun of working with driftwood is to produce a layout with an eye to the dramas in their natural environment. The driftwood shown on the right page looks

like a single piece of wood but, in fact, it consists of two Horn Woods joined with Wood Tight. The Wood Tight knot is concealed by attaching willow moss and Bolbitis around it. If you are unable to find the Horn Wood you desire, you may "create" a Horn Wood as you wish. This is an effective piece of know-how. Meanwhile, the Horn Wood on the left side is placed as if it is lying on top of the stone. The wood blocks

the light providing shade to the area below. In view of this, willow moss is planted in such an area. Since planting willow moss only in one location on the left would look unbalanced in the entire layout, additional willow moss is also planted in the area below the Horn Wood on the right side. This arrangement allows the viewer to feel that the willow moss appears like a shadow of the Horn Wood.



Express Ying and Yang by planting willow moss under the Horn Wood while using Riccia and Cuba Pearl Grass in the bright places.

Horn Wood has wide variations of size and shape. However, this does not mean that we can always obtain wood of the desired size and shape. Consider the combined use of more than one piece of driftwood.

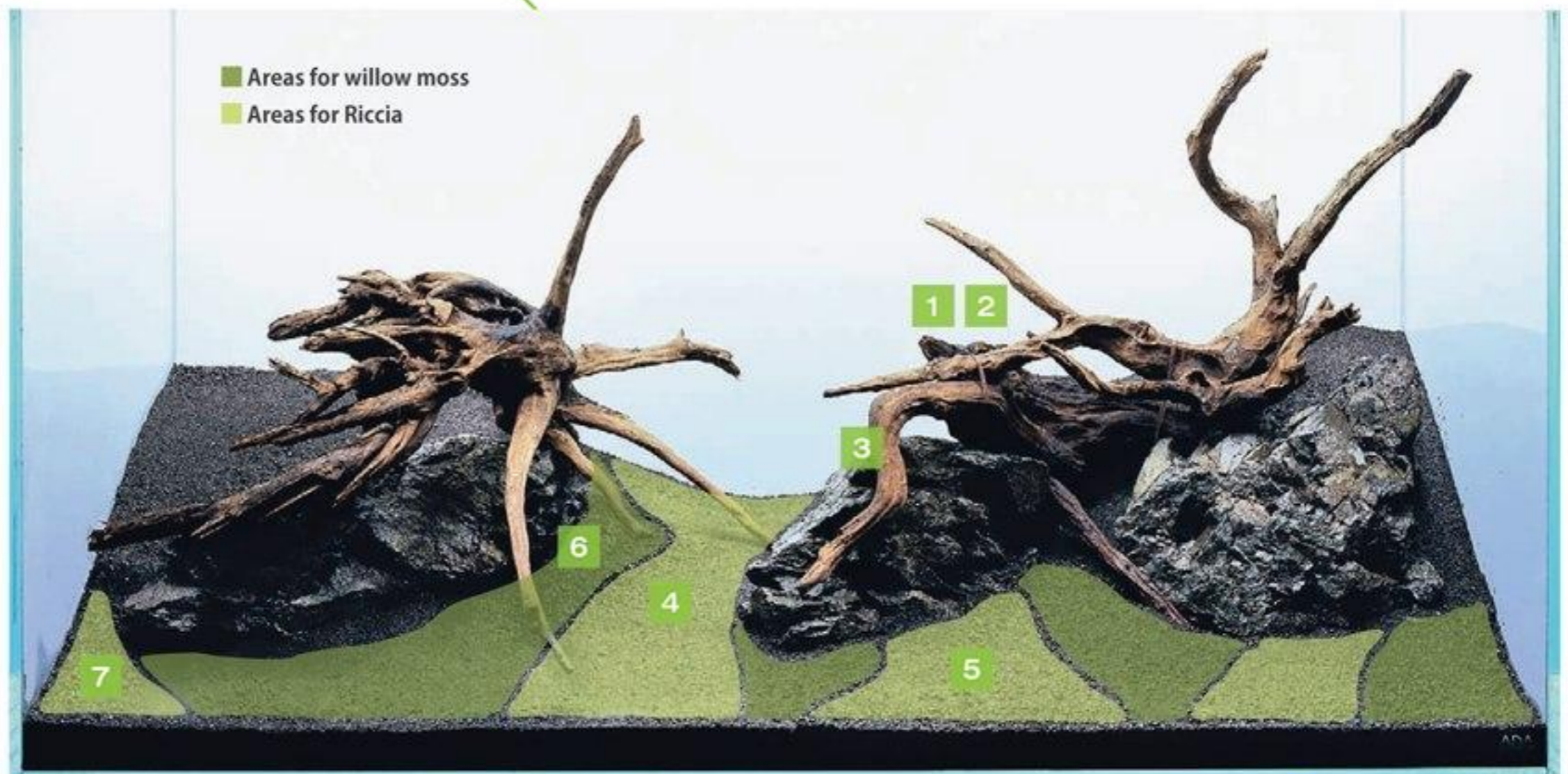
Use two pieces in combination if you are unable to find your ideal driftwood.

H

□HORN WOOD



- 1 If the two joined pieces of wood are unstable, fix them with Wood Tight as shown in the photo.
- 2 Once the willow moss has grown, it completely covers the Wood Tight, making it invisible.
- 3 Tying willow moss around some parts of the wood adds a rustic flavor to the layout.

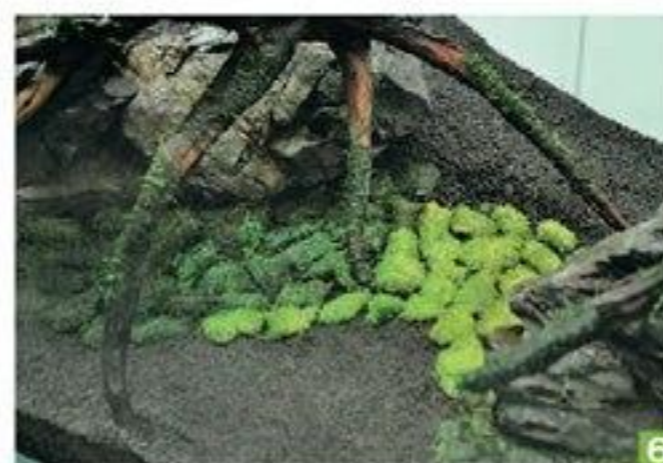


The areas below the Horn Wood are for the expression of shade using willow moss.



- 4 The open space in the center of the convex composition is a bright sunny area. Riccia fixed on small stones is carefully placed in this area.
- 5 Riccia and willow moss can be placed even in nooks and crannies if they are fixed on small stones.
- 6 Willow moss is planted in the shade below the Horn Wood as shown in the photo.
- 7 The aquascape needs to be composed in great detail down to the corners of the tank to achieve a beautiful layout.

Express Ying and Yang with willow moss and Riccia





Know-How on Driftwood Layout

Driftwood is a natural composition material essential for planted aquariums.

It is vital to select driftwood appropriate to the tank size in order to produce a good driftwood layout.

The shape of the driftwood is essential, but the most important factor is its size.

Too large a piece of driftwood makes the viewers feel visual pressure from the layout, so it is advisable to combine a few pieces of driftwood which are smaller than you imagine.

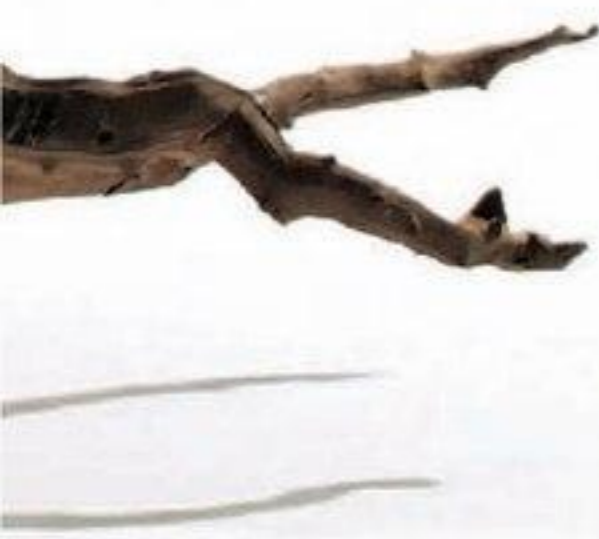
A better composition can be achieved by using a few pieces of wood which complement each other, rather than focusing on a single piece of good-looking driftwood.

It is suggested to arrange branch-type driftwood projected at a steeper angle in order to add a dynamic quality to the layout, while the driftwood in the form of a block or plate should be laid down on the substrate to provide stability.

A flexible way of thinking is essential to optimize the unique features of each type of driftwood.

Every piece of driftwood has a drama that it went through in a natural environment.

This is why placing driftwood in an aquarium provides us with rich inspiration for the layout.





Making the Curve of Horn Wood

Driftwood comes in various shapes and there are layout methods appropriate for each shape. A wide variety of layouts can be achieved by selecting and combining a couple of pieces of Horn Wood, which are a type of driftwood with relatively fewer distinctive features and have many different forms including branching and thin tips. The center part of this example has an arch formed by taking advantage of the curved lines of the Horn Wood. In order to give a clear view of the open space under the driftwood, stem plants are planted on both sides to make a basic concave composition.



DATA

Tank / Cube Garden W180×D60×H60 (cm)
 Lighting system / Grand Solar I (NAG-150W-Green×1, NA Lamp 36W Twin ×2) ×3 units
 Lighting for 10 hours a day
 Filtration system / Super Jet Filter ES-2400 (Bio Rio L, NA Carbon)
 Substrate system / Aqua Soil – Amazonia, Power Sand Special L, Bacter 100, Clear Super, PENAC W for Aquarium, PENAC P for Plants & Tourmaline BC
 CO₂ system / Pollen Glass Beetle 500 – 6 bubbles per second with CO₂ Beetle Counter (Tower/20 is used)

Air / Aeration with Lily Pipe P-4 for 14 hours when lighting is OFF at night
 Additives / Brighty K & Green Brighty STEP 2
 Water change / 1/3 water change once a week
 Water quality / Water temperature: 25°C; pH: 6.8; TH: 20mg/ℓ
 Fish species / *Rotala nanjean*
Pogostemon sp. "Dassen"
Myriophyllum mattogrossense (Green)
Ludwigia arcuata
Alternanthera reineckii
Nesaea pedicellata
Rotala rotundifolia

Aquatic plants / *Rotala rotundifolia* (Green)
Bolbitis heudelotii
Fontinalis antipyretica
Echinodorus tenellus
Cryptocoryne costata
Cryptocoryne petchii
Cryptocoryne wendtii (Green)
Lilaeopsis brasiliensis
Rasboroides vaterifloris
Puntius titteya
Oreichtys sp.
Rasbora einthovenii
Otocinclus sp.
Caridina japonica



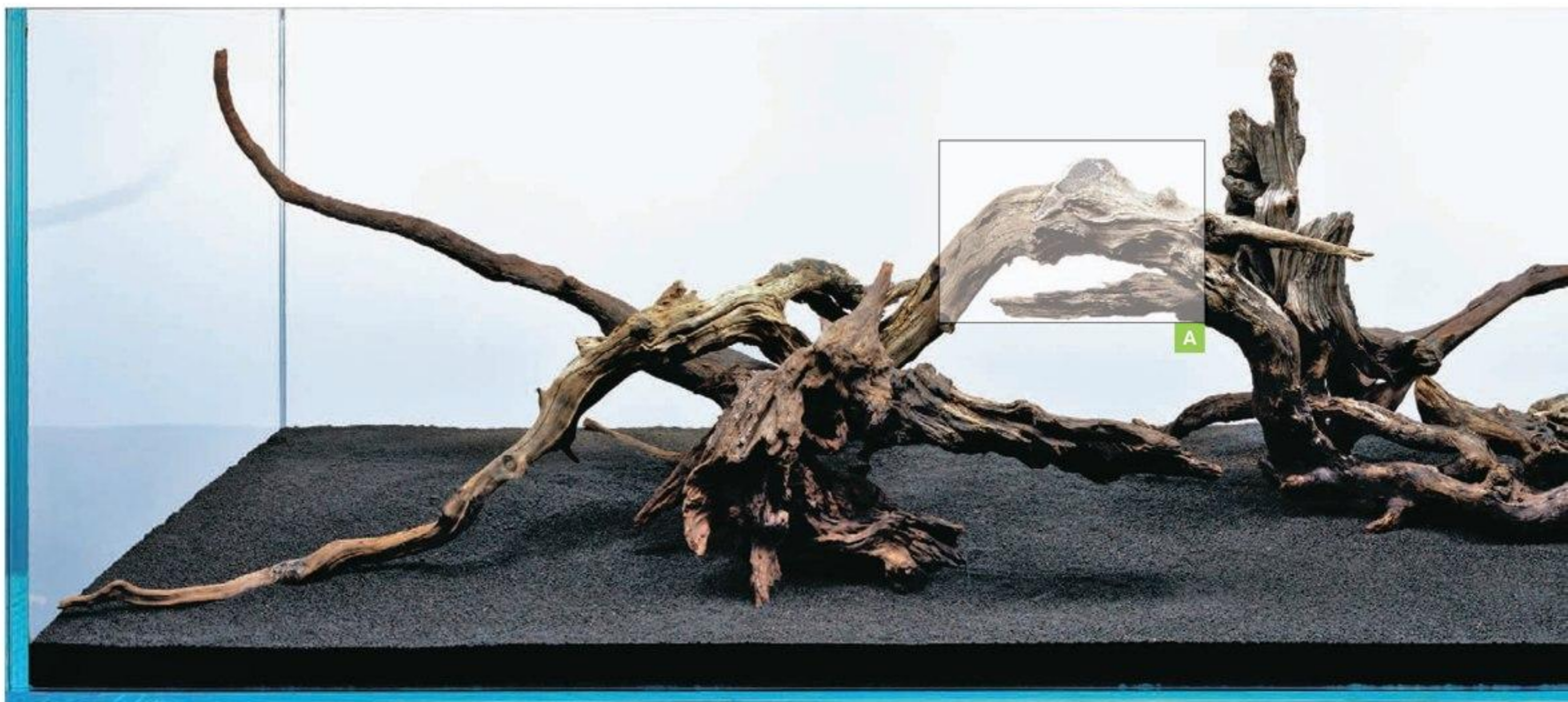
Meaning of Use of Driftwood

Driftwood is made and carried by water. After submerged wood is exposed to the flow of water over a long period of time, only the hard part of the wood remains and becomes driftwood.

In a natural environment, driftwood provides a secluded habitat for fish and also serves as a part of the aquascape after moss and ferns have attached themselves to it.

Using driftwood for layout means introducing such a role to the aquascape.





Finding Good Points of Driftwoods

The framework of this layout is made by combining five pieces of Horn Wood in such a way that it looks like a single piece of large driftwood. The reason that it looks that way is because all the constituent pieces are in similar colors. Unifying the texture produces coherence and natural feel. On top of it, the driftwoods are skillfully arranged so that the well-shaped part of each piece is highlighted.



Outstanding pictures, paintings and photographs have excellent composition, and it is the same for the planted aquarium. A beautiful aquascape is supported by good composition. Compositions using Horn Wood and planting patterns are introduced here.

It is important to make a stable composition taking advantage of the features of the driftwood.

The composition that has arched driftwood and achieved overall balance is one of the layouts with the highest degree of difficulty. The composition framework made by Horn Wood shown on the left photo makes us feel its beauty of form because it is arranged in such a way that the good points of each constituent Horn Wood (shape of the arch and branch tips) are highlighted and, at the same time, the composition is made steady and stable. Planted aquariums with beautiful layout cannot be achieved without stable composition. When we use driftwood that has a good shape, we have to be careful as we usually think of showing off the beauty of the driftwood itself, and tend to ignore the overall composition balance. Even if the driftwood is not really shapely, we still can produce a wonderfully planted aquarium with excellent layout as long as we make a good and steady composition.



H
HORN WOOD



1 Expression of the center part as the theme of the work

Initially, only *Cryptocoryne wendtii* "real green" was planted as shown on the left page, but it has changed solely to Cobra Grass to ensure clear space at the arch.

2 Expression of background using stem plants

Stem plants are planted in the background taking into consideration their colorfulness and other factors. *Myriophyllum matogrossense* which facilitates the forming of an arch by trimming is planted in the area in contact with the open space, the main theme of this aquascape.

3 Expression of shades with *Cryptocoryne*

The *Cryptocoryne* species, which are shade aquatic plants, are planted in the area that falls under the shadow of the horn woods to produce an aquascape at the side of the driftwoods. *Cryptocoryne wendtii* "tropica" and *Cryptocoryne petchii* in brown can supply color variety.

Study of Tannins of Driftwoods

A key concern with the layout using driftwood is the yellowish and brownish discoloration of the tank water. This symptom is particularly observed during the initial stage, causing aquarist novices some worry. This section looks into the tannins and organic acids from driftwood that cause water discoloration.

01: Water in which Horn Wood was soaked for one week. Brownish discoloration of the water due to tannins and organic acids can be observed. There was no decline in pH level but the COD level increased.

02: Water in which Branch Wood was soaked for one week. Yellowish discoloration of the water can be observed. For this case, too, there was no decline in pH level but the COD level increased.

03: Tap water as a control (set aside for one week). As a matter of course, this tap water is colorless and its COD value is $0\text{mg}/\ell$ since it contains no organic matter.

04: Angel fish living in black water.

05: Driftwood also contains the same elements as black water.

Why does the water turn yellow with the use of driftwood?

Originally being a part of a tree, driftwood has unique characteristics different from those of stones. A wilted, fallen tree turns into driftwood by being carried by the river water. In the stream, the tree is polished and thinned down while being rubbed by the sand and stone. At the same time, organic matter leaches from the wood into the water and eventually decomposes as the wood is exposed to water over a long period of time. And what is left at the end is a hard woody portion which is not easily decomposed as well as hardened resin and organic acid such as tannic acid and humic acid. Of these, the main culprit for yellowing water is water-soluble tannic acid and humic acid. The significance of water discoloration differs depending on the type (tree species) and origin of driftwood, but any type of driftwood can more or less stain water. In an experiment when Horn Wood and Branch Wood were soaked in water, the water with Horn Wood turned brownish while the water with Branch Wood became light yellow. The measurement of COD (Chemical Oxygen Demand) of the water showed a rise in COD level of up to $6\text{mg}/\ell$ for

both the water with Branch Wood and with Horn Wood (the COD of the tap water which is a control was $0\text{mg}/\ell$). The cause of the rise in COD is suspected to be organic matter leached from the driftwood.

Are tannins and organic acid from driftwood harmful?

It is of course ideal to have clear, colorless water in planted aquariums, but the use of driftwood often causes water discoloration. This is mainly due to organic acids such as tannic acid and humic acid which are not harmful to the fish and aquatic plants. These acids are also contained in river and lake water especially in tropical rainforests where there are many rivers of "blackwater", darkly-stained clear water resembling black tea, containing a large amount of organic acid. Tropical fish living in blackwater rivers and aquatic plants growing there adapt to that environment. It is said that blackwater has the effect of calming fish physiologically and promoting their spawning. These organic acids do not influence the pH level of water and thus do not cause any immediate harm to the fish and aquatic plants. However, this does not mean that there is no problem at all with organ-



01



02



03



04

ic acids leached from driftwood. The stained water has problems including deteriorated appearance of the layout and lower underwater light intensity. A decline in the light intensity of water can have an adverse effect on the growth of stem plants and other sun-loving plants. To prevent this problem, stained water should gradually be eliminated.

Measures against tannins within the tank

People often say that boiling driftwood is a good preventive measure against the leaching of tannins; however, this is not only unrealistic but also has a negative effect. Firstly, driftwood usually cannot be boiled in a pan at home unless the driftwood is very small in size, and it is also not practical for us to prepare a very large pan just for this purpose. Furthermore, for some species of wood, the resin which is not leached out at room temperature can be leached from the driftwood when heated and may spoil both



05

the driftwood and boiling pan. Heating driftwood also gives it a brittle surface besides the problem caused by the element which leaches out only when heated.

Purchased driftwood can basically be used for layout without processing, yet it is advisable to make the following preparations. Firstly, remove the dirt on the driftwood surface, if any, with a brush or other tool. If the driftwood is very dry and likely to float, soak it in water for a certain period of time. The soaked driftwood will usually sink in about a week, although the period required varies depending on the type of driftwood. Soaking driftwood in water also helps reduce the amount of tannins and organic acids contained in the driftwood. The tannins and organic acids leached from the driftwood after layout production and aquarium setup should be removed by way of water change and the use of NA Carbon (activated carbon). At any rate, frequent water changes during the initial

stage of an aquarium will decrease the chances of a failed aquarium setup regardless of whether driftwood is used or not. For aquariums with driftwood, tannin-stained water can be an indicator of water change. When the discoloration of the tank water is noticeable, about one third of the tank water should be changed. The problem of tannin-stained water can be moderated by the use of NA Carbon which powerfully absorbs tannins and organic acids. It is suggested to replace the NA Carbon once about every 2 weeks to maintain its high absorption capacity during the initial stage of an aquarium. Among driftwoods, Horn Wood leaches a relatively large amount of tannin, but it can be contained in about a month by way of frequent water change and use of NA Carbon. Since the bacteria in the filter start functioning at around this time, the decomposition of organic matter is facilitated and the COD level also decreases.



Environment Created by Driftwood

Use of driftwood provides a clear composition to the layout.

However, it is not only the role of driftwood. Driftwood helps bring variety to the environment within the tank.

For instance, the area that falls under the shadow of driftwood is conducive to shade plants, while the surface of the driftwood is an ideal place for epiphytic plants to grow. Driftwoods create an environment suitable for the growth of aquatic plants.



Composition and Planting Featuring Jati Woods



1 Concealing the joints of driftwood with Microsorium

Microsorium pteropus 'Trident', which is an epiphytic plant with three-pronged leaves, is planted at the driftwood joints. No epiphytic aquatic plants are planted on the branches of the Jati Woods in order to highlight their original texture.

J
□ JATI WOOD



Completed aquascape is featured in the photo book "Glass no Naka no Daishizen"

The completed aquascape can be enjoyed in panoramic size on page 252-253 of the photo book. The essay on producing a natural feel by planting of aquatic plants provides further insight into the work.



The above photo shows the aquascape immediately after arrangement of Jati Woods and planting of aquatic plants. The Jati Woods were arranged to make a triangular composition having an open space on the right side so that their shapely branches could be highlighted. The point worth noting in this aquascape immediately after planting is the aquatic plants around the Manten stones placed on the right side. Cryptocoryne is planted at the back of the stones while Cobra Grass and short Cuba Pearl Grass are planted in front so as to produce a natural flow from mid to foreground. Cobra Grass is also planted in between the driftwood. Such an expression to the finest detail produces a natural feel to the aquascape.

This page shows a layout effectively using Jati Wood at the time immediately after planting as well as the secret of how to produce a natural feel in the aquascape. The planting of aquatic plants in detail in addition to the effective arrangement of the driftwood creates a fine overall impression.

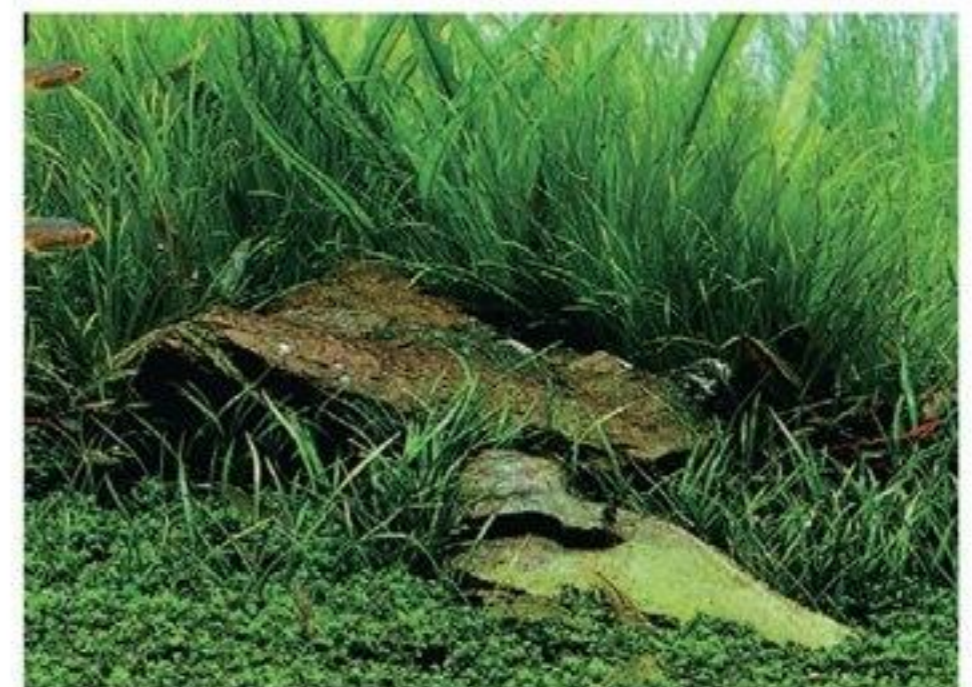


2 Expressing the shadow of driftwoods using shade plants

Cryptocoryne is planted in the areas that fall under the shadow of the Jati Wood. In this example, Cryptocoryne wendtii "green" is planted in the area shown in the photo. Planting Cobra Grass at the side of Cryptocoryne naturally creates a link with the foreground plants.



Jati Wood is a hard, brown driftwood and this driftwood particularly when it is large has attractive, shapely branches. However, it is currently not available in the market and hard to obtain.



4 Making an expression of secluded areas beside the stones

A seamless flow connecting the foreground and mid-ground is produced by planting aquatic plants of different heights such as Cryptocoryne, Blyxa, Cobra Grass and Cuba Pearl Grass. This delicate planting around the stones leads to a natural feel in the layout.



3 Making an expression of recessed areas

The layout is provided with recessed areas by securing a wide planting area for the foreground plants along the curved line drawn by the driftwoods in contact with the substrate. In the end the Cobra Grass became more dominant than the Cuba Pearl Grass and gives the layout depth.

NA Goods That Support Driftwood Layout

WOOD TIGHT
Layout & Maintenance Tool
Wood Tight

Firmly fixes epiphytic aquatic plants



01 Also recommended for joining driftwoods
02 Comes with a cutter for the user's convenience
03 Put the Wood Tight through the roots

The Wood Tight is used to fix epiphytic aquatic plants such as Microsorium, Bolbitis and Anubias. To fix these plants, put the Wood Tight through the plant roots and twist it so that the roots are in firm contact with the driftwood. The Wood Tight in similar color as the driftwood is barely noticeable.



MOSS COTTON
Layout & Maintenance Tool
Moss Cotton

Biodegradable thread to fix mosses



01 Does not break easily because of its higher twist count
02 In similar color as willow moss and not noticeable

The Moss Cotton is used to fix willow moss on to the driftwood. To fix the willow moss, put it on the driftwood to the extent that the surface of the driftwood can be seen in patches, and then tie it securely with Moss Cotton. The Moss Cotton is convenient as it will naturally biodegrade after the willow moss has taken root to the driftwood.



RICCIA LINE
Layout & Maintenance Tool
Riccia Line

Special thread in similar color as Riccia



01 Having an easy-to-work diameter and the same color as Riccia
02 Ideal for South American Willow Moss and less epiphytic in habit
03 Aquascape as in the above photo is made possible by attaching Riccia to driftwood

If you wish to attach Riccia to the driftwood for the layout, it is advisable to use Riccia Line to fix non-epiphytic Riccia. Unlike Moss Cotton, Riccia Line is non-biodegradable and effectively fixes non-epiphytic Riccia for a long time.



PHYTON-GIT
Liquid Fertilizer
Phyton-Git

Removes algae on driftwood



01 Helps prevent fern diseases
02 Apply 1:1 diluted solution to driftwood with a brush, etc.

Algae grow more or less on any driftwood in a maintained layout. The black beard type of algae, in particular, grows on the surface of the driftwood easily. If the algae problem is serious, drain off the water from the tank and apply 1:1 diluted solution of Phyton Git to the affected area to get rid of it.



Nature Aquarium goods useful for the production and maintenance of driftwood layout are featured here. Such a production and maintenance job is made easier by having special goods and tools at hand.

Checks organic matter derived from driftwood

P

Water Condition & Treatment
Pack Checker COD (Chemical Oxygen Demand)

PACK CHECKER COD



- 01 Measures COD just by pumping tank water into the tube.
- 02 Usually indicates 2mg/ℓ or below.
- 03 COD rises easily when horn woods are used.

In the aquarium using driftwood, various types of organic matter can leach into the water. It can be said that Horn Wood in particular is a material where such leaching is obvious. An item for measuring the amount of organic matter is Pack Checker COD.



Quickly absorbs the substances contributing to the yellowish water

N

Filter System
NA-Carbon

NA-CARBON



- 01 To be set in the topmost layer of the external filter.
- 02 Available in pellet form (full scale)
- 03 Water turns yellowish when tannic acid leaches out.

The tank water may become yellowish when new driftwood is used. This is caused by tannic or other acids contained in the driftwood. Although they are not harmful, they can spoil the appearance of the aquascape. To solve this problem, it is advisable to filter and absorb the causal substances using the NA Carbon, high-function activated carbon, during the initial stage of the aquarium.



Trims aquatic plants attached to driftwood

P

Layout & Maintenance Tool
Pro-Scissors (Spring/Short)

PRO SCISSORS



- 01 Pro-Scissors Spring is spring-type scissors that accommodates any style of holding
- 02 Pro-Scissors Short is ideal for pruning the plants near your hand

Even for epiphytic plants attached to driftwood such as Willow moss and Microsorium, trimming is essential to maintain their beautiful appearance. The trimming tools recommended for this purpose are Pro-Scissors Spring and Short. Trimming is made easy with this compact-size tool that fits into your palm.




Removes algae grown on driftwood

P

Layout & Maintenance Tool
Pro Picker

PRO PICKER



- 01 Scrapes off the algae with its fine edge.
- 02 Features curved edge on both sides.

It is important to remove black beard type algae grown in spots on the driftwood surface wherever there are dents. With Pro Picker, you can effortlessly scrape the algae off of the dented or intricate portions of the driftwood. This is one of the essential items for maintaining the planted aquarium.





THE INTERNATIONAL AQUATIC PLANTS LAYOUT CONTEST 2012

THE INTERNATIONAL AQUATIC PLANTS LAYOUT CONTEST
GRAND PRIZE
¥1,000,000
¥100,000

New Judging System Introduces Evaluation of Top Aquarium Layouts by the Participants

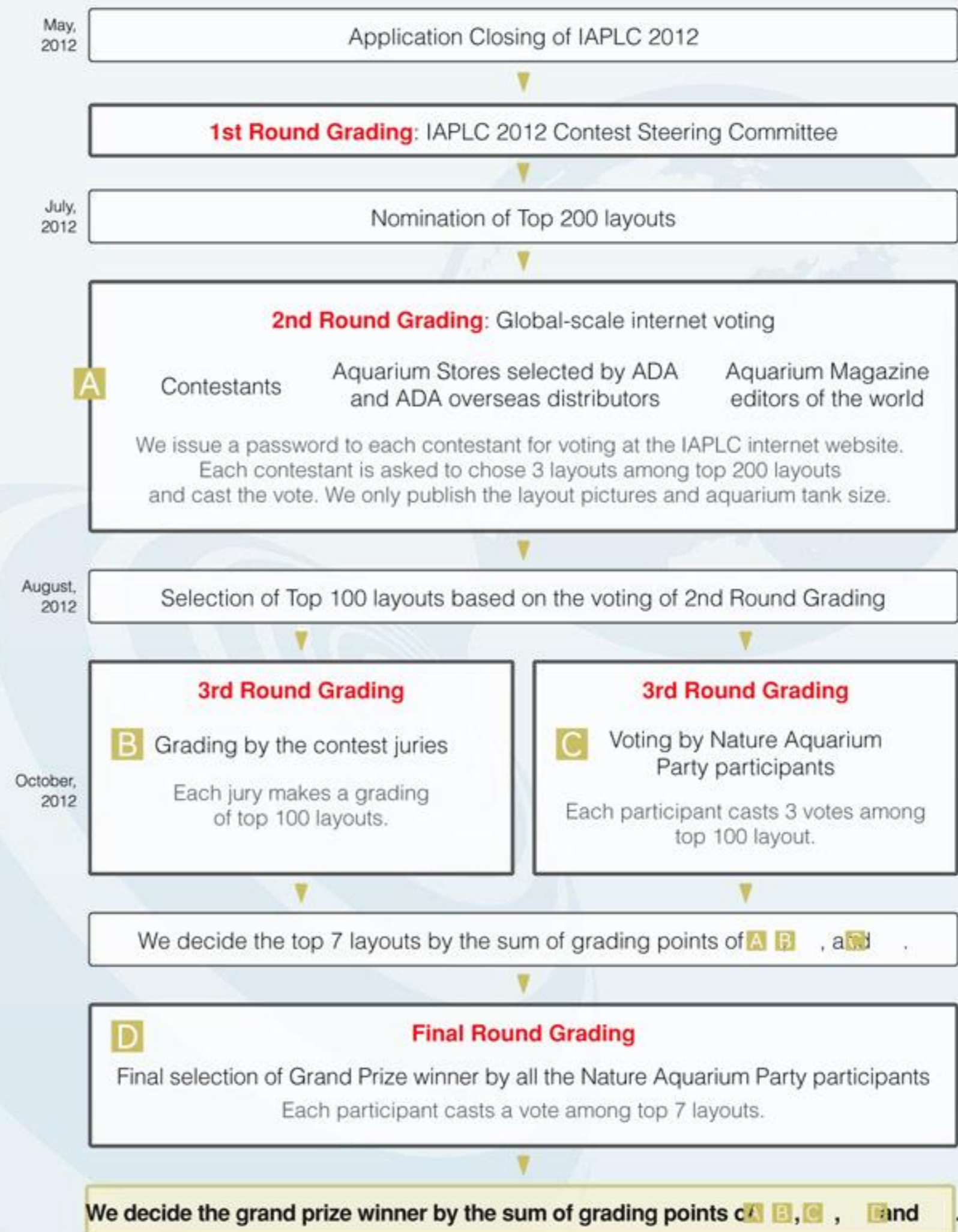
At the Nature Aquarium Party held in September 2011, it was announced that a new judging system will be introduced effective from the International Aquatic Plants Layout Contest (IAPLC) 2012. Under this new system, the points earned by voting of the contestants as well as Nature Aquarium Party participants are also counted, in addition to the grade points given by the contest judges.

Have you ever thought, "If I were a judge, I would rate this layout higher" when you saw the results of the past 11 rounds of the International Aquatic Plants Layout Contests? As we all know, there is neither absolute judging nor improper evaluation for planted aquariums. The system under which the world renowned judges make a grading was based on their sensitivity and experience, and the ranking which is determined by summing up the grade points is considered a fair judging system for a contest in view of the fact that a larger panel of judges leads to more objective decisions. In order to reflect the more general views of many people other than the judges, ADA has therefore decided to introduce such a new judging system to the IAPLC.

For the new system, we hope you do not mistakenly believe that the ranking will be determined solely by the voting of contestants and party participants. Existing grading by the judges also takes place parallel with the voting to decide the final ranking. Please understand that each voter's judgment is not an absolute factor in determining the ranking. This is also the same for the judgment arrived at by the judges. Also please bear in mind that evaluating other people's works tests your own aesthetic appreciation. It is a matter of course that the voters make their judgments based on their own views and values, but it is ADA's sincere hope that these votes will be principled ones that can be presented to anyone. We are also aware that stern action should be taken for works that do not meet the application requirements and also on multiple entries by a single person. ADA looks forward to the entry of above board entries which will never be questioned by others.

You will have double fun, the fun to join and be judged as well as the fun to judge, from the IAPLC 2012. We look forward to your entries!

Judgement of The International Aquatic Plants Layout Contest 2012



At the Nature Aquarium Party 2011, the ADA Award was selected by the voting of the participants who were present at the party. This was held as a trial run for the new system to be introduced from the next IAPLC. During the IAPLC 2012, the Grand Prize winner is determined by means of the sum of points earned from online voting, grading by the judges and participants voting.

You can watch the video on this website

IAPLC official website

<http://www.IAPLC.com>

IAPLC

Search

VIDA CAFÉ

Takashi Amano's way of living

“Hurry up while Taking it Easy”

Takashi Amano's motto “Hurry up while Taking it Easy” reflects the ideal he seeks as an expressive person. In VIDA CAFÉ for this issue, we uncover Amano's philosophy underlying the keyword “analog”.

We can find some tips on the “legacy” we should leave in this increasingly digitalized modern society.

vol.02

Films for the Next 20 Years

Upon hearing that his favorite films for large format cameras would be discontinued, Amano decided to purchase enough films for 20 years. Currently, preparation including arrangement of freezers for the storage of a large number of films is going on at a rapid pace. We are now living in an age where videos and music are just a click away, but how our world would change when this stock of films of 20 years is used up. We will surely feel the passing of time in the films taken out of the freezer many years later, just as when we spot a man preserved in a freezer appearing in a cartoon. Amano, who refers to himself as an “analog person”, says, “I'm sure the digital camera 20 years from now will incorporate outstanding technical innovations. But I still want to use my favorite large format film camera even when such an advanced digital camera is available. Well, I know I will have trouble if no one can scan the photo I take with my camera.” Amano devotes his life to recording natural ecosystems in the visual media and proving it within aquariums. From his facial expressions, we can feel that he sticks and is deeply attached to film cameras and analog culture.

“Digital Culture” and “Analog Culture”

In contrast to European and American “digital” culture, the Japanese culture is said to be an “analog” one. European and American societies are supported by “digital-type” communications which create entirely clear systems in a logical and functional way; on the other hand, Japanese society tends to frequently use the “analog” style featuring the exchange of non-verbal messages as well as communication through empathy. Amano places great value on dialogue and communication in his daily life. This must be because Amano's works and inspirations for his creation are derived from communication with nature and other people, not from computers. Amano seems to pick up various things instinctively from the messages exchanged during dialogues and communication and shares such things with others. He also derives the motivation to move forward and pursue his ideal from touching, heartfelt moments. Amano very often talks about the importance of brushing up on our sensitivity everyday. He does this because the ability to sense things is crucial in analog culture.

The Way to Talk Big

Among many Amano sayings, there is an interesting one: “Let's talk big”. After knowing that it does not merely mean boasting, what do you, dear Readers, think Amano means by that? One day, Amano was talking to a media person about something that would be utterly impossible but would be like a dream if it turned into reality. Then in the end, the media person showed empathy and agreed to help Amano make it happen. Telling someone about your aspiration from the bottom of your heart can tap into the listener's intuition. Even if it is something that cannot be achieved alone, taking a small step can become a big step forward if another people's empathy can be gained through dialogue. In brief, Amano's “Let's talk big” means that even if it is such a large-scale matter that you are afraid is impossible, it is still important to say it out as if you hold a card to play it as strong as a royal straight flush. In fact, Amano is very good at “talking big” in an analog way. No matter how impractical a thing appears, something exciting can happen if it is communicated to someone else.

"VIDA" is a Portuguese word for "life". This corner introduces you to Takashi Amano's way of life through topics around us.



Interviewer/Editor: Miyuki Yamamoto (International Marketing Department, ADA)

Living on a Solitary Island

Although made up of two conflicting words of "hurry up" and "take it easy", the word "hurry up while taking it easy" reflects Amano's attitude of pursuing his ideals. Amano said, "I recently feel time is running out fast. I think I need at least a half century to complete my life's work. So I need to move forward many times faster than other people. But at the same time, I also want to keep myself calm and relaxed. This is my ideal." Analog cameras are inefficient and time consuming compared to digital cameras, but they have the profundity and warmth that cannot be expected from digital appliances. Amano wishes to continue to use his favorite things even if doing so forces him to live on a solitary island named "Analog" floating on the sea of digitals. This belief supports Amano, who keeps on running, in his life's work.

Legacy to be Left Behind

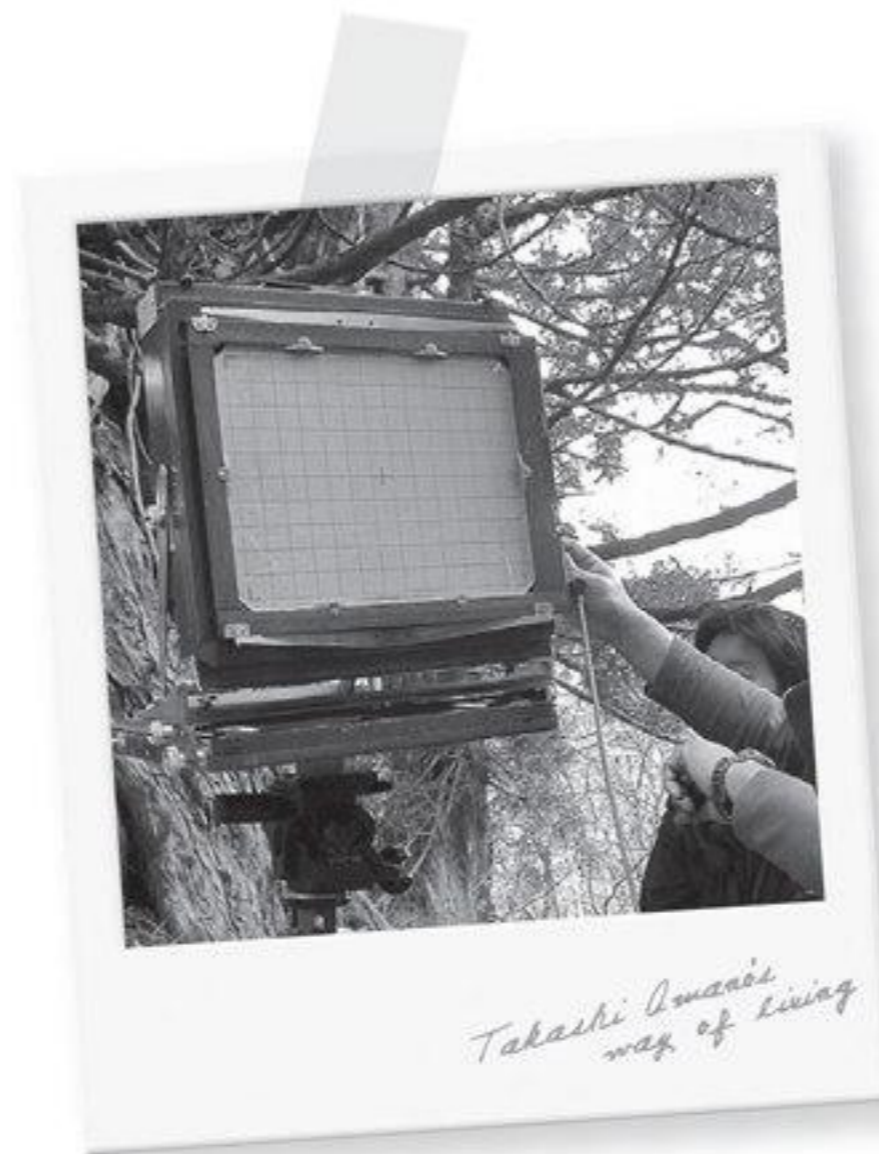
"Tuna will disappear from our table!?" – Whether there was actually no case in the past or just not featured by the mass media, we recently hear a lot about environmental issues relating to our lives and tables. In Sado Island, which Amano has visited a number of times for shooting, there was news that the rare crested ibis was attacked by the marten, a species of Family Mustelidae, and it was a big concern for Amano. It can be said this incident is a

man-made tragedy since martens had been brought to the island with the aim of reducing the number of hares there.

In the same way, rapid changes in the ecosystem caused by artificial environmental disruptions can be observed in many environmental cases. Amano said with regard to this, "Several species of living beings become extinct every day. Society takes action only if the mass media pick up the case, but in fact there are many animals that become extinct without our knowledge. Nature is no longer the resource we knew in the past. So, we, as humans, might

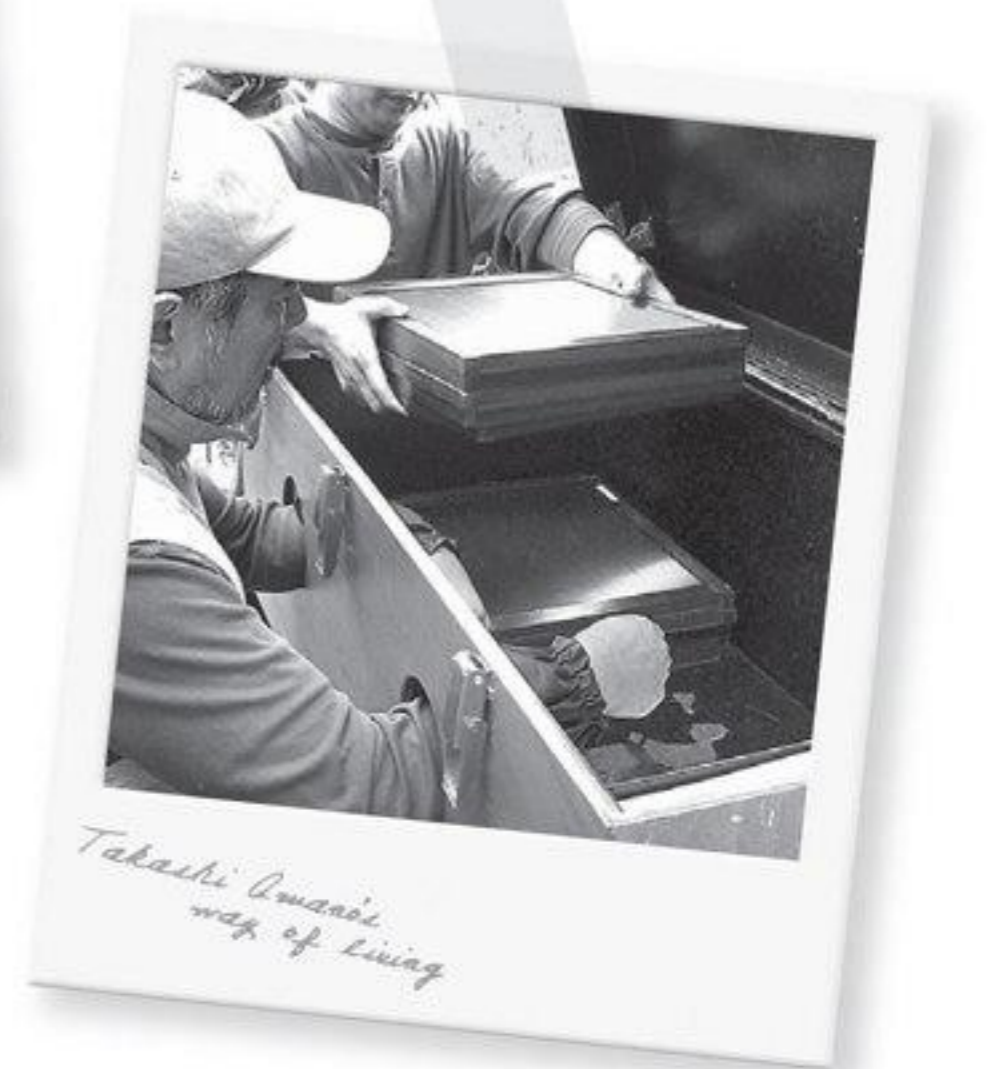
need to protect the balance of nature and living creatures, and not only protect the lives highlighted by the mass media, to restore the original ecosystem."

The objects Amano points his analog camera at keep on changing day by day. The analog culture unique to Japan also seems to be changing in this increasingly diversified living environment. The message put out by Amano makes us stop and think what "legacy" we should leave behind 20 years ahead and for the everlasting future.



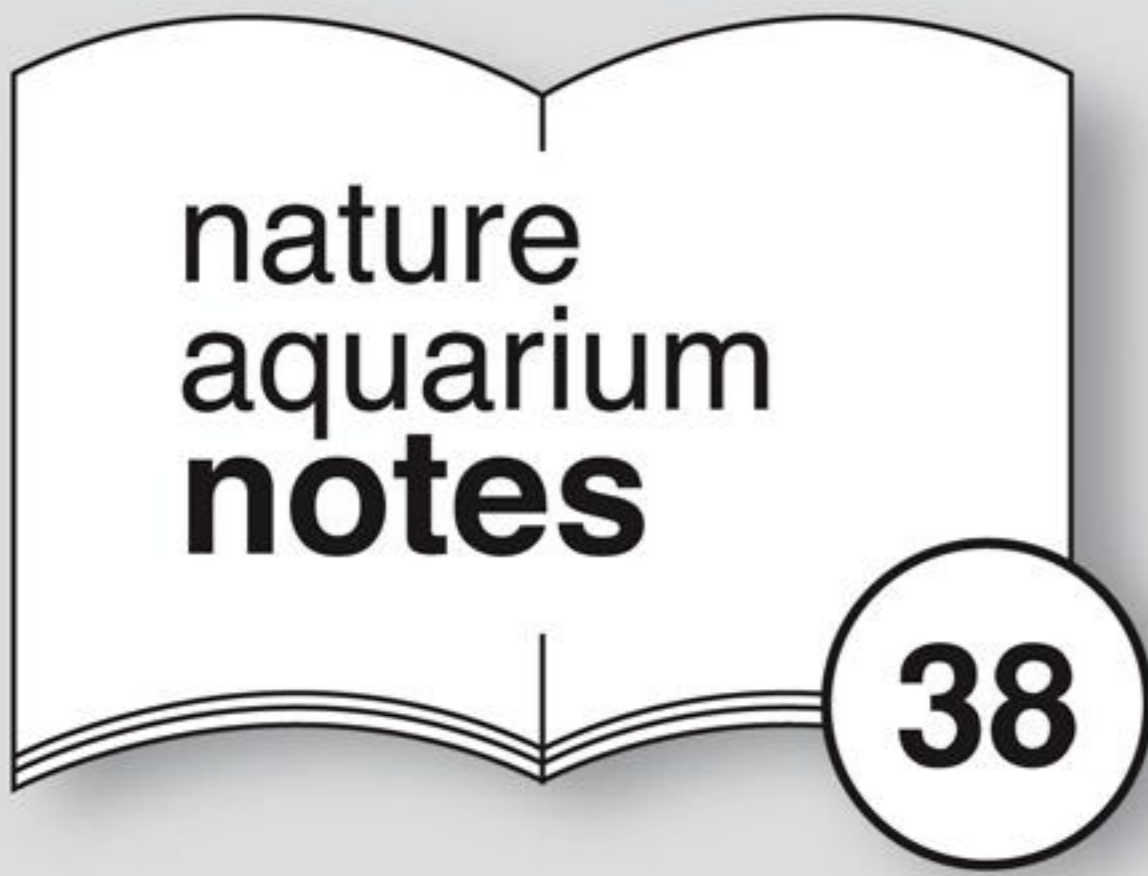
Takashi Amano's way of living

The viewfinder of the large format camera is really big. Amano brings the camera into focus by checking the objects appearing in this viewfinder to the finest detail with a magnifying glass.



Takashi Amano's way of living

Concentration and skill are required even for loading of the film for a large format camera. It is Amano's hope to pass down this attractive tool to following generations.



Making Full Use of Super Jet Filter

The Super Jet Filter that keeps the Nature Aquarium water clear, not only gets rid of visible turbidity but also decomposes invisible contaminants. The environment within the tank is supported by these functions. Make full use of Super Jet Filter to enjoy an ideal filtration process.

● How to Select Super Jet Filter

An external filter is mainly used for the filtration system for Nature Aquarium. It has structural features in that the filtration system is installed independently of the aquarium tank and is connected to the tank with hose and pipe. These features allow the tank to be equipped with only the minimum required number of pipes without any objects that block lighting or hinder the appreciation of the aquascape. This structure also has the advantage in that a higher filtration efficiency can be achieved by increasing the capacity of the filtration system and using a pump which provides the appropriate flow rate. In addition, the system's external filter is of the sealed type. This feature is an added advantage because the water surface is kept less undulating and therefore CO₂ added to the tank is prevented from escaping into the air. For these reasons, the Nature Aquarium mainly uses external filters.

The Super Jet Filter has been developed as the filtration system ideal for the Nature Aquarium through the process of upgrading the general features of conventional external filters. Its basic concept is the combination of a large-capacity filtration system (canister) in an efficient design with a pump that offers high pumping capacity and prevents a decline in flow rate. Based on this concept, the pioneer model ES-600 was developed, followed by ES-1200 and ES-2400 for larger tanks. In addition to this basic lineup, the EX and EX2 equipped with a canister of 1.5 and 2 times larger capacity were also developed. Among

the nine types of Super Jet Filters currently available, aquarists may select the pump that delivers an adequate flow rate according to tank size while choosing the canister size based on the contamination level of the tank water and filter installation method (refer to the table below). For example, ES-600 is the filter for a 60cm tank and its canister size is usually adequate for a tank of this size. In the case where a large number of fish are kept in the aquarium or the fish species is the type that easily dirties the aquarium water, ES-600EX and EX2 can also be a suitable option. However, the models with "EX" are too tall to install in the cabinet or the Garden Stand. You may select these models if they could be installed outside the aquarium stand. For all the series, the models with "EX" and "EX2" are the type to be installed outside the stand. Keep this point in mind when selecting a filter.

● Construction of Super Jet Filter

All the models in the Super Jet Filter series come with filter media and pipes so that they can be installed immediately upon purchase. For filter media, Bio Rio M or L is provided in just sufficient amounts to fill the canister, except for Super Jet Filter ES-600. The grain size of Bio Rio that is available as a product is S, while the Bio Rio M and L mentioned above has a larger grain size. Bio Rio has a high filtration capacity and its large porous surface is ideal for bacteria to colonize. The surface area and water permeability of the filter media are important for adequate functioning of the

biological filtration. The finer filter media leads to a larger total surface area, but it also contributes to greater water resistance, resulting in lower water permeability. The water resistance also becomes greater if the volume of the filter media is larger. This is why Bio Rio M or L which is larger in size than the ordinary Bio Rio is provided only for ES-1200, ES-2400 and models with "EX" or "EX2" that can accommodate a large volume of filter media. These models can maintain good water permeability and the use of a larger volume filter media enhances total filtration efficiency.

These filter media are placed in a net for better usability. The pipes provided for connecting the Super Jet Filter and the tank currently consist of inflow glass pipe, outflow glass pipe and clear hose. These pipes are not noticeable both within and outside the tank, making the filter ideal for the Nature Aquarium in terms of both function and appearance. The material and detailed specifications of these inflow and outflow glass pipes are different from those of Lily Pipe, but they have common features including the overall shape and the effectiveness in easing water flow. There are two types of ES-600, for water depths of 36cm and 45cm, and they come with inflow glass pipes of different heights. Too short an inflow pipe has a problem of sucking in air during water change while too long an inflow pipe may come in contact with the substrate or suck in Aqua Soil. Be sure to select the type with an inflow pipe of appropriate height for the tank used.

■ Comparison of Super Jet Filter Specifications

Series	Flow rate (ℓ/min) 50Hz / 60Hz	Filter media volume (ℓ)			Applicable tank size (cm)
		No marking	EX	EX2	
ES-600	5.5 / 6.0	6	8	11	W60×D30×H36 ~ W90×D45×H45
ES-1200	16 / 19	8	13	18	W90×D45×H60 ~ W120×D45×H60
ES-2400	27 / 31	16	28	37	W180×D60×H60

Select a model appropriate for tank size and conditions by the combination of pump flow rate and filter media volume.

● Making Effective Use of Filter Media

The Super Jet Filter series delivers an adequate filtration capacity just with the filter media provided. However, it takes some time to experience a sufficient filtration effect when a new tank and new filter are installed at the same time. Bio Rio provided with the filtration system is a set of biological filter media which decompose water contaminants by the

activities of beneficial bacteria grown on its surface. It has only a physical filtration capacity until the surface of Bio Rio is adequately colonized with the beneficial bacteria which feed on organic matter on the surface of the filter media and grow. It usually takes 2-3 weeks for the bacteria to become very active.

The initial setup period of the aquarium is the time when the tank water is most contaminated, since adequate amounts of bacteria are not yet present in the filter or substrate. It is therefore necessary to change the tank water very frequently during this period in order to get rid of contaminated water. Meanwhile the NA Carbon, which is used in combination with Bio Rio, absorbs water contaminants and helps reduce the frequency of water change. Possessing an outstanding absorption capacity twenty times higher than conventional activated carbon, the NA Carbon, a high-performance activated carbon, effectively absorbs ammonium and nitrite by chemical filtration and helps purify the tank water until the biological filtration process is adequately established. Its absorption capacity lasts for about two weeks, and thereafter it will be taken over by biological filtration.

The filter media provided for ES-600 are anthracite and Bio Cube, which are different from other models of the Super Jet Filter series. The combination of these filter media helps in the smooth establishment of the aquarium during the initial stage and is more effective than the use of Bio Rio alone. ES-600 is designed for 60cm tanks which are most popular among Nature Aquarium beginners. In view of this, user-friendly filter media are provided for ES-600. Anthracite is a chemical filtration medium that absorbs and removes water contaminants just as activated carbon. With its finer grain size than activated carbon together with a volume as high as 4ℓ, anthracite effectively absorbs ammonium and nitrite generated during the initial stage of the aquarium. However, its fine grain size can easily result in clogging and it is therefore advisable to switch anthracite to Bio Rio gradually once the biological filtration starts functioning. Bio Cube used together with anthracite is a biological filtration medium. It should be kept in the canister even when the anthracite is removed so that the switch to the new filter media can be effected while maintaining the biological filtration capacity of Bio Cube. The net used for anthracite can be reused for Bio Rio. Be sure to place Bio Rio in this net since its grains can pass through the strainer of the Super Jet Filter.

● Making Effective Use of the Pipe

For Nature Aquarium, the Lily pipe with its unique shape is used as the outflow pipe to achieve a sufficiently moderate flow of the water from the external filter. The Lily Pipe eases strong water flow with its trumpet-like outflow port. If exposed to excessively strong water flow, aquatic plants planted in aquarium

can fall out easily or may not grow properly. On the other hand, aquatic plants do not grow healthily without water flow due to insufficient supply of CO₂ and nutrients to the surface of the leaves. For these reasons, adequate water flow is essential in a tank with aquatic plants. The outflow glass pipe provided for the Super Jet Filter similarly has the effect of easing water flow adequately. When the water flow needs to be controlled according to the fish species kept in the tank, this is possible by changing the existing outflow glass pipe to Poppy Glass or Violet Glass released under the Do!aqua series. The Poppy Glass reduces the water flow rate and is suitable for fish such as guppies and betta that prefer a gentle water flow, while the Violet Pipe which increases the water flow rate is suitable for fish such as carp and characins that prefer a slightly more intensified water flow. For the Poppy Glass and Violet Glass, the matching inlet pipes are available to achieve a harmonious and coherent design. Outlet pipes including Lily Pipe also have an aeration effect if installed in an appropriate position and help prevent lack of oxygen or formation of oil film.

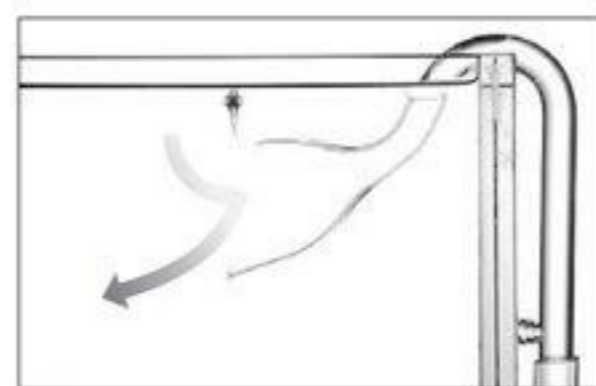
● Filter Installation and Maintenance

Equipped with a pump of high pumping capacity, the Super Jet Filter ES-600 has an excellent feature in that a high water flow rate can be maintained even when it is subjected to water resistance caused by the filter media. This feature allows the use of fine grains of anthracite as a filter medium; however if a sufficient amount of water is not supplied due to the load applied to the water inlet of the pipe or inflow hose, symptoms such as idle running

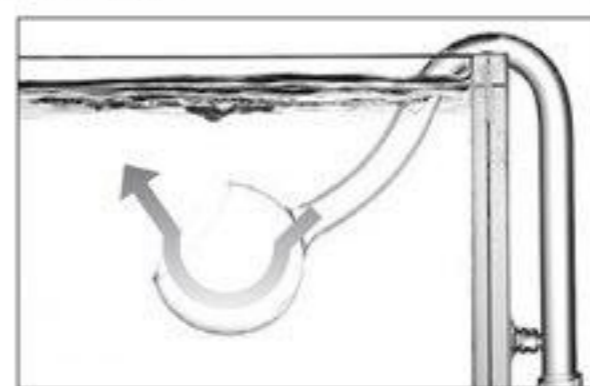
pump and air pockets may occur. When it is observed that air is at all times mixed with water even after the air trapped in the canister is released, it is advisable to check for the clogged inflow port or the bent hose. The Super Jet Filter is not designed for attaching a sponge to the inflow port and a pre-filter to the inflow hose. When wishing to install a pre-filter or germicidal lamp for the purpose of getting rid of water turbidity, install them on the middle part of the outflow hose.

The Super Jet Filter should be maintained by rinsing the filter media basically once every 2-3 months. Contamination can be removed from the filter media easily just by putting the filter media in a pail, filling the pail with tank water and then removing the filter media from the pail. This gentle rinsing is sufficient to clean the filter media since rinsing them too hard can result in loss of the beneficial bacteria on the media surface. If the water flow from the filter is still too low even after rinsing the filter media, contamination inside the pump is suspected. In this case, open the pump front casing and clean the interior of the pump with a tool such as a brush following the instructions and illustrations on the user manual. ES-600, in particular, is prone to a lower flow rate if dirt is accumulated in the impeller grooves. An appropriate flow rate may be restored just by cleaning the impeller.

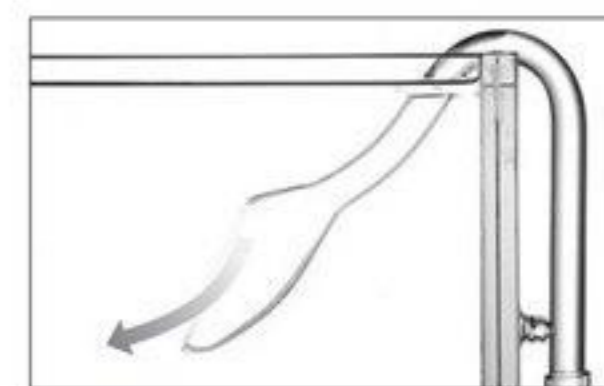
■ Selecting outflow pipe by desired water flow



The Lily Pipe eases the water flow moderately and, at the same time, has the effect of preventing formation of an oil-film by suctioning in the water near the water surface.



Poppy Glass has an effect of easing water flow circulated within the tank by setting the flow direction towards the water surface. The water surface undulates moderately.



Violet Glass releases water slightly downwards while maintaining a high flow rate. It has a structure to prevent air from entering the outflow port.

■ Cleaning the impeller



A reduced flow rate of the pump may be restored by cleaning the impeller with a brush. If the impeller is worn, it should be replaced with a new one.

Q&A

We can often feel the power of microorganisms while carrying out the maintenance of aquatic plant layouts. Proliferation of algae which is a big enemy to aquatic plants, water turbidity and outbreaks of disease are all related to the presence of bacteria within the filtration system. A kind of "sense" for controlling the invisible power of bacteria is also essential for successful management of aquatic plant layouts. Sharpen your senses while building up experience!

Q I am enjoying the aquatic plant layout of the aquarium installed in my living room. The living room light is left on even after the aquarium lighting is switched off. Should I consider any light-shielding measures during the night for the sake of the fish and aquatic plants? Furthermore, what is the best timing to switch to aeration?

A You don't need to take any measures to block even the room lighting. Please observe the aquatic plants and fish after a certain period of time after the aquarium lighting is switched off. You should be able to notice the aquatic plants with closed leaves and fish becoming quiet. You may even witness changes in the fish body color (become less colorful) or patterns. These symptoms indicate that the plants and fish are asleep. For the timing of aeration, CO₂ injection should be switched to aeration when the aquarium lighting goes off. The use of the NA Control Timer is very convenient as it provides an automatic switchover function between CO₂ injection and aeration according to the ON/OFF light.



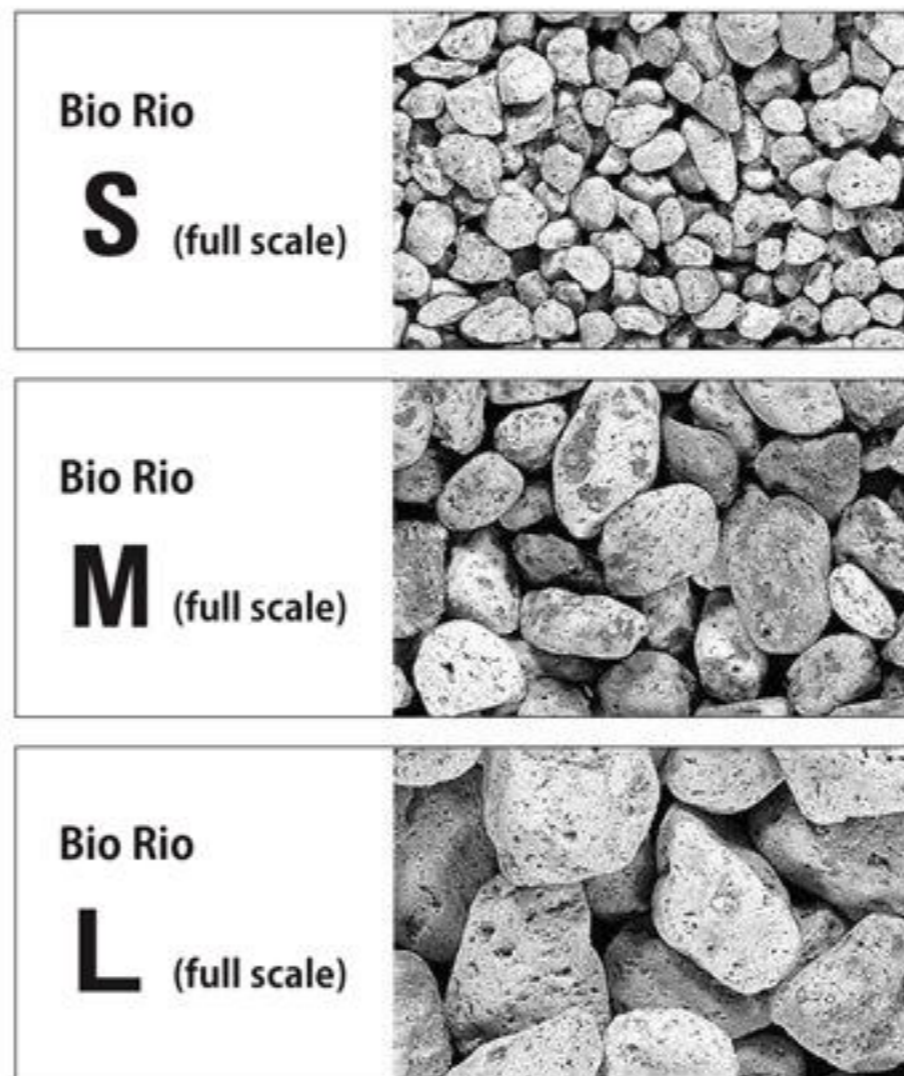
NA Control Timer



Rotala wallichii with closed leaves in sleep mode

Q I would like to ask about filter media. Any filter media of any manufacturer will get larger as the filtration capacity gets bigger. Isn't it better to use many smaller pieces of filter media and a powerful pump?

A You may think that filling with many small pieces of filter media will provide a larger surface area and allow the bacteria to function better. However, the use of many small filter media results in smaller gaps between them and this may induce clogging. The idea of "combining with a powerful pump" is understandable. However, the pump of an external-type aquarium filter does not flush water into the filter media but it flushes the water that has gone through the filtration system due to the positional relationship between the filtration system and pump. From this fact, if the filtration system filled with small pieces of filter media suffers from clogging, the problem of inadequate water intake may arise in the high-flow pump, or the pump may fail, or an accident may occur due to the idling of the motor. Select a proper pump flow rate and filter media as these are the important elements to determine filtration capacity and efficiency.



Determine the size of filter media according to the flow rate of the motor.

Q I am growing willow moss. It is growing bigger but the color hardly becomes bright and the plant has turned blackish green. Is there a good tip for growing willow moss?

A Nutrient-enriched water is suspected if the willow moss turns blackish, or brown-colored rhizoids are growing. One cause of these problems is worsened water contamination due to the deterioration of water quality caused by overfeeding or insufficient filtration capacity. Besides this, a rise in water temperature can also be one of the causes. Willow moss is an aquatic moss which prefers a clean stream. Its appearance will thus be better if it is grown in low-temperature water with low nutrient content. Some measures to improve such problems are to cut off all the blackened willow moss; change the aquarium water more frequently to lower the nutrient content of the water, and absorb and get rid of excessive nutrients by using NA Carbon (high-performance active carbon) with its high absorption capacity as the filter media. Then, wait for new leaves to develop.

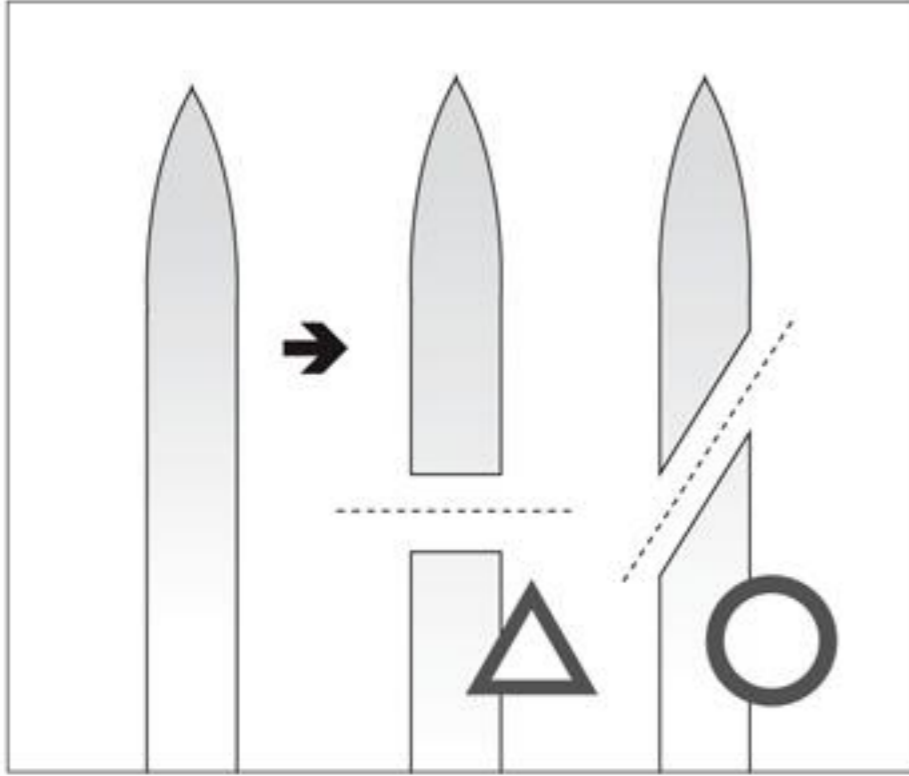
Q How should I trim tape-like aquatic plants such as Vallisneria and Cyperus helferi?

A To maintain the aquascape using Vallisneria, you would always need to trim its runners to prevent them from spreading out to unwanted areas. The only way to treat overhanging leaves is to trim them. Thin them out by cutting the base of the leaves or trim them at water surface level. When trimming overhanging leaves at the water surface level, the plant will look better if the leaves are trimmed diagonally to sharpen the leaf tips. The tape-like aquatic plants should be trimmed anyway before they start overhanging – this will promote the active growth of new leaves. Needless to say, taking care of tape-like aquatic plants in a shallow aquarium is quite a hassle. It can be said that it is particularly difficult to maintain the good appearance of Cyperus helferi.

Send us your questions!

We welcome your questions and inquiries on Nature Aquarium. Please feel free to send your questions to ADA to our email address (ada@adana.co.jp).

Trimming of overhanging tape-like aquatic plant



A diagonal cut instead of straight cut provides a sharp cut end surface and causes the plant's appearance to improve slightly.

Q I would like to ask about Wabi-kusa. My Wabi-kusa has become too long and algae have grown on some of the leaves. May I trim off all the leaves in this case? Will new leaves develop even after trimming?

A Aquatic plants selected as Wabi-kusa are basically suitable for aquatic plant layouts and have a high tolerance for trimming. If you are trimming Wabi-kusa for the first time, you should trim them at the lower end so that aging of the stem plant's lower stems can be slowed down. Still, such aging is unavoidable as the trimming is repeated and the lower stems of stem plants gradually turn blackish or harden. If this symptom is observed, development of new leaves cannot be expected even after trimming. In this case, replace the plants with new Wabi-kusa.



Mainly stem plants with a tolerance for trimming are selected as Wabi-kusa.

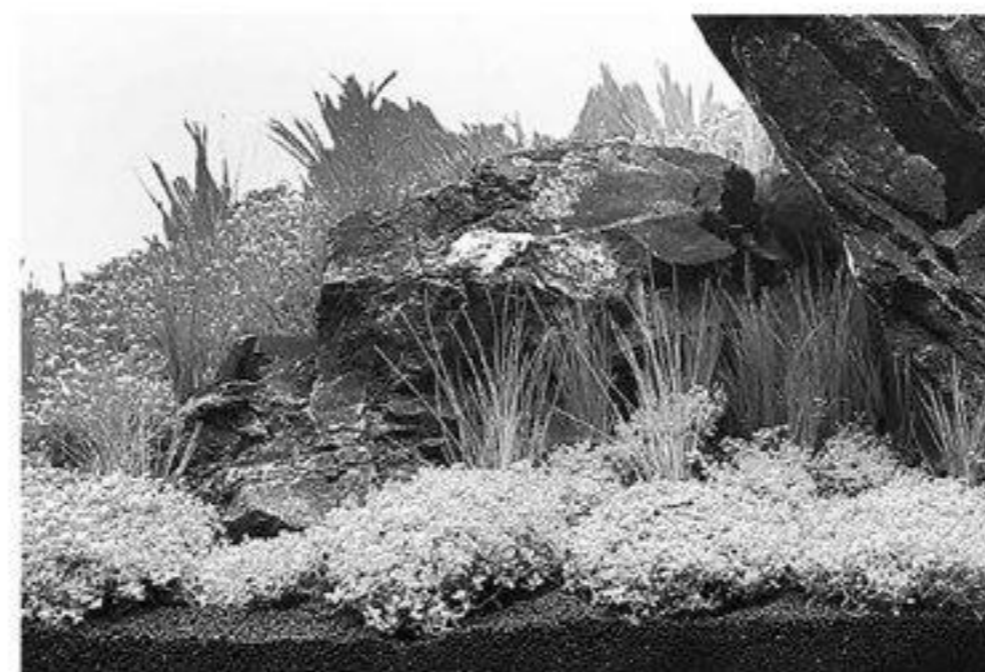


Vallisneria appears attractive only in an aquarium with adequate depth.

Q I planted Cuba Pearl Grass (*Hemianthus callitrichoides* Cuba) but it easily floats up. It also takes time for it to take root in the substrate and does not grow well. Is there any method for growing Pearl Grass?

A The roots of the Cuba Pearl Grass are very short making it difficult to plant. It is particularly hard to plant Cuba Pearl Grass with above-water leaves as air bubbles are formed on the leaves immediately after planting, and this makes the plant float up easily. To prevent the plant from floating, lay the powder type of Aqua Soil on the substrate surface and plant the Cuba Pearl Grass by

putting its roots inside the soil as much as possible. If the Cuba Pearl Grass is originally rooted in rock wool, leave a little bit of rock wool at the root tip so that it can be used as a wedge to prevent the plant from floating. Another useful planting tip is to bury the Wabi-kusa Cuba Pearl Grass in the substrate. This Wabi-kusa can be cut into 4 to 8 pieces before planting. This planting method is recommended because it is easy and new leaves will develop quickly as the Cuba Pearl Grass roots will not be damaged.



Example of an array of Wabi-kusa Cuba Pearl Grass.



Wabi-kusa may be cut into several pieces before use.

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