



An Introductory Information Leaflet on

Keeping Semi-Aquatic Frogs & Toads

in association with



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PLANTS

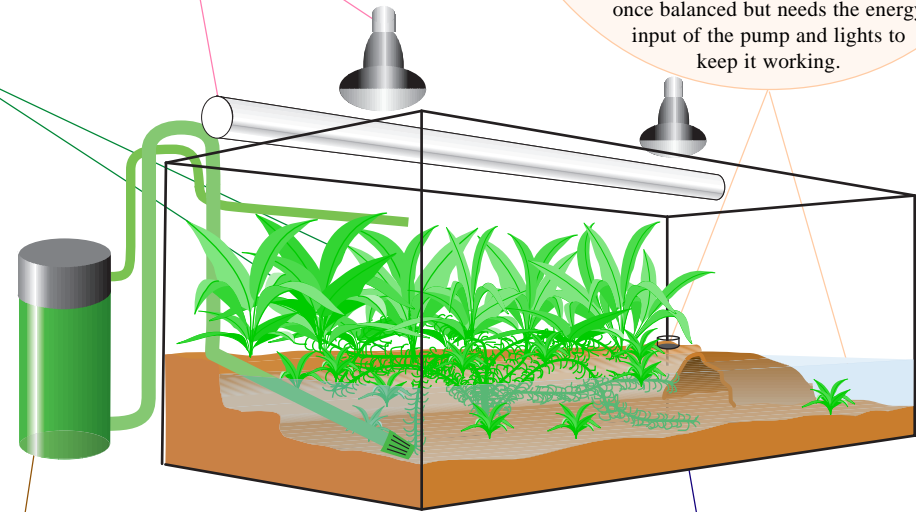
Aquaria function and look better if they are furnished with live plants. A typical set up would have several bunches of a suitable aquatic plant like *Elodea spp.* This could be free floating but looks better if anchored into the substrate. Other plants are best chosen from those species of bog plants that will live happily both under water and above the surface. Many tropical aquarium plants are of this type and have the interesting habit of producing different leaves above and below the waters surface.

LIGHTS

Lighting the aquarium may not be necessary if the ambient light level is sufficient. Essentially, light is needed for the animals to see their food and for people to look into the aquarium. If plants are used, extra light will be required. In any case, illuminating the aquarium with an overhead lamp makes the setup very much more attractive and natural looking. Either a spot lamp or a fluorescent tube can be used and if the surface is agitated by the action of the filter, the patterns this creates with the light is most pleasant.

BIOLOGICAL FILTRATION

An undergravel filter pulls up water from a space below the filter plate. Usually an air lift is used but the small masthead water pumps are also very effective. The filter gains its effectiveness from the water being drawn through the gravel or similar medium overlying the filter base plate. As the water passes through the medium, suspended matter is trapped. Bacteria in the gravel act on the organic content and convert it to simpler, less harmful substances. The water and dissolved materials pass into the space below the plate and then up through the lift pipe back into the bulk of the water. Plants, powered by light driven photosynthesis, adsorb the dissolved substances as nutrients, thus cleaning the water. This biological system works well once balanced but needs the energy input of the pump and lights to keep it working.



EXTERNAL CANISTER FILTERS

Water is syphoned out of the aquarium into the base of the canister. Here, it passes up through various filtering media to the top of the canister. On its way, much of the suspended waste matter is taken out. If chemical agents, like activated carbon, are being used, then some of the dissolved waste will also be removed. Do not forget to change this type of medium regularly, as they soon fill up and cease to be effective. The water is returned to the aquarium by the pump. If this returning water is allowed to play on the surface, the movement will create an aerating effect. Not only will the aeration return the oxygen/carbon dioxide balance to equilibrium, it will add to the visual attractiveness of the set up, especially if light beams through the disturbance.

CLEANING & MAINTENANCE

The water in an aquarium should circulate through the system so that it remains clean and fresh. An easy way to assess this is to judge it on small and visual clarity. As the system is closed, toxic waste cannot be allowed to accumulate. In the system described, particles of waste are filtered out and trapped in a medium. Here they can be removed, by cleaning out the canister filter for example, or natural processes can be relied on to convert the waste to less harmful substances. Soluble waste is circulated around and is acted upon by biological agents like bacteria in the filter media or chemical agents like carbon in the canister filter. Both these reduce the level of harmful substances. They must be helped by cleaning and renewing the filter media in a canister filter or changing some of the water in all systems. Look upon the water as diluting any waste to a tolerable level but it must be cleaned or renewed before the allowable level of pollution is exceeded.

Semi-Aquatic Frogs & Toads...

...Biology

Frogs and toads are a group within the Amphibia. They live in most habitats with access to fresh water and occur all over the world except Antarctica. Most live on land and occasionally return to water to soak themselves or breed. Some species, however, divide their lives equally between the aquatic and terrestrial environments.

Some of the species that fall into this group are those from the family, Discoglossidae. Commonly available examples include the Fire Bellied Toads, *Bombina spp.* and the Painted Frogs, *Discoglossus spp.*

...Housing

The most suitable containers for these animals are aquaria. Set up with half land and half water, these tanks make admirable quarters. As none of the animals housed will become very big, it is possible to make an attractive display with the use of live plants and other decor. A 60 cm x 30 cm x 30 cm aquarium would be large enough for two pair of animals at 5 cm each or about a dozen smaller animals at about 2.5 cm each.

The water in the aquarium may be filtered in some way and the movement necessary to do this, used to aerate it at the same time.

To set up the tank, add the substrate to form a base and into this anchor the plants. Any other items of decor can then be positioned. Finally, fill the aquarium with water. Ordinary tap water is suitable but may be improved by adding a proprietary conditioner. The filter should be installed and run for about a day to settle the environment. (If an undergravel filter is used, it must of course, be installed before the substrate.)

The substrate has two functions. One is purely decorative and the other, functional. Where decor is concerned, much is dictated by personal taste but a few points are worth considering. Choose the colours to blend into a pleasing background that contrasts well with the animals. Either a very dark or very light colour will probably make the best contrast. A terraced effect built behind retaining walls gives the impression of depth and allows both the animals and plants access to different levels. The functional role of the substrate will

centre around its ability to trap and hold particulate material and how much microbial life it can support. Chemically, it is better if it is inert. The best substances to choose are the fairly coarse, lime free sands and gravels used for aquariums. Alternatively, the artificial medium, Hortag is also recommended.

Plants again, serve in both decorative and functional roles. They are better planted towards the rear of the tank and choose a species like *Elodea*, *Scindapus* and *Tradascantia* that are tough and will provide good oxygenation.

These frogs are active climbers so a secure, escape-proof lid is essential. If some of the lid is made from a non-corroding metal mesh, this will allow for ventilation. It may also be possible to direct the light into the cage through this mesh. If the light levels are too low, however, the lighting should be installed to the underside of the cage lid. This may require the expertise of an electrician, as mains equipment and water certainly do not mix! It is essential all electrical equipment is installed correctly and adequate protection made against electrocution.

...Husbandry

Small frogs cannot really be handled. If it is necessary to move them from one aquarium to another, a suitably sized net should be used. The net should be made from a soft material as the skin is quite delicate. Return the frog to water as quickly as possible and avoid escape by capping the net with a free hand. Larger animals can be quickly grasped with the hand and gently lifted from one place to another. Do not touch the animal for any longer than is necessary.

As far as cleaning out is concerned, the nature of the recommended set up only allows for minor interference. Every week between half and two thirds of the water can be removed and replaced with fresh tapwater. Allow the new water to stand in a separate container for a day to let some of the chlorine escape and for the temperature to equilibrate.

The only other major task is to trim the plants as they grow and fill the tank. If they are not thriving, this is a good indication that something is wrong and needs to be corrected. The most common reason for plants to fail is insufficient light.

...Food & Feeding

Frogs usually recognise food by smell and movement. Like many amphibians they will snap at moving objects in the hope that they might be a meal. If the morsel tastes OK and is of a size that can be swallowed, it is eaten.

Small insects and the like are probably the best foods as they contain a good balance of nutrients. Crickets will make up the major part of the diet with other suitably sized items as the rest. Dust all food item with *Repton* at least once each week. Alternatively, crickets and mealworms may be fed Cricket & Mealworm Diet Plus respectively. This will load the gut of the insects with vitamins and minerals to make a nutritionally balanced meal for the animals eating them. Food should be offered two or three times per week with enough to be totally consumed in about half an hour. Do not leave uneaten food in the water. More frogs are probably lost through overfeeding and the subsequent pollution it causes, than any other cause.

...Reproduction

Semi-aquatic frogs are some of the easiest frogs to breed and many of the excellent publications available will provide further information. Adult pairs will, of course, be required. To tell the sex of a frog it is usually necessary to wait until the individual is mature and then often, in breeding condition. This conditioning may be seasonal, so the right time of year is important. All these details will be available in the publications recommended or a 'Herpetological' club or society could be contacted. Another source of good information is the Internet.

...Health & Disease

Pet frogs do not suffer from many problems. Occasional skin infections may show and can usually be dealt with preparations suitable for fish. The treatments and advice are available from aquarists and pet stores. Good practice, hygiene and first aid will probably deal with rest. If real disease is discovered, a vet must of course, be consulted. Pet frogs do not pose any real threat to human health. All the normal hygiene precautions regarding humans and animals should, however, be observed.