

Planting Terrariums

Text and photos by BEAT AKERET



Spinytail lizard, *Cordylus warreni regius*, in a terrarium planted with *Gasteria* sp.



Hardly any serious aquarium keeper today does without live plants in the display tank, but there are still relatively few herp keepers who use live plants in their terrariums. SCHNEIDER (1979) wrote, "I have often heard the objection: A terrarium is not as natural and beautiful to look at as an aquarium; it looks more like a cage." He comments that this may be the reason there are more aquarium keepers than terrarium keepers. Many who do keep terrariums believe that plants could never survive long with the animals — that they would either be crushed or torn up by the animals themselves, or killed by the environmental conditions that the animals require, especially in desert terrariums. This is true to a certain extent, but careful selection of species, the use of proper lighting, and the help of a few tricks, make it possible in many cases to house plants and animals together successfully. And if the combination of plants and animals is also congruous from a geographical standpoint, the result can be especially attractive. New interest in reptiles and amphibians might even be awakened in visitors who see such a display.

The three basic requirements for plant care are (1) sufficient light, (2) suitable temperature, and (3) the right quality and quantity of water. For sufficient light, lamps of a suitable type must be installed in sufficient number. Fluorescent,



Sonoran highland desert terrarium housing a banded rock rattlesnake, *Crotalus lepidus klauberi*, and planted with cacti (*Echinocereus* and *Echinocactus*), agaves, and dry grass



Southeastern Asian rainforest terrarium housing the skink *Dasia smaragdina*, and planted with *Asplenium nidus-avis*, palms, *Platycerium grande*, and *Cyrtopodium* sp.



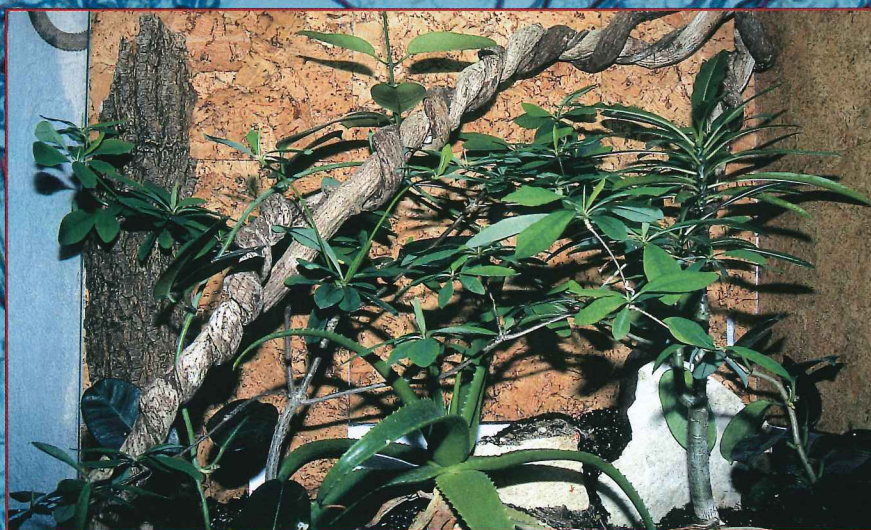
Horned viper, *Cerastes cerastes*



A White's treefrog, *Litoria caerulea*, sits on a blooming orchid



Eastern Asian coastal dunes terrarium housing butterfly lizards, *Leiolepis reevesii*, and planted with *Pandanus pygmaeus*, *Cycas revoluta*, and *Nephrolepis exaltata*



Northwestern Madagascan seasonal forest terrarium housing gold dust day geckos, *Phelsuma laticauda*, and planted with *Pachypodium* sp., *Euphorbia* sp., *Aloe* sp., and *Stephanotis* sp.

metal-halide, and mercury-vapor lamps are the most commonly used. Metal-halide and mercury-vapor lamps, however, are better for spot lights and heat sources than for general lighting.

Demonstrated minimum lighting requirements are shown in Table 1. Figures given for dry terrariums are for plants without any type of shade. A heavily spined cactus, for example, would need more light. When using a large number of lamps, it is a good idea to connect them to an electronic voltage ballast as a safety precaution against overheating the terrarium. These require less electricity and produce less heat than conventional devices. A normal voltage ballast for an 18-watt fluorescent tube requires about 10 watts in addition to that required by the tube itself, and can become quite hot. An electronic voltage ballast requires only 2 watts, and just gets warm, not hot. Two lamps can be connected to the same resistor, further reducing the energy requirement and heat produced per lamp. Osram "Quicktronic" voltage ballasts can even be connected to three or four 18-watt fluorescent tubes. The same daylight fluorescent tubes used for reptiles and amphibians are also good for plants (SAUER, 1989). Special grow lights for plants are not only unnecessary, but they produce an unnatural purplish light that is not suitable for diurnal basking reptiles; if they are used at all, it should be only in combination with daylight lamps.

Metal-halide lamps have proved to be especially good in planted

Table 1.
Minimum lighting required for maintaining plants in terrariums.

Rainforest terrariums

to 50 cm high	80 watts/m ²
50–100 cm high	120 watts/m ²
100–150 cm high	180 watts/m ²

Savanna and desert terrariums

to 50 cm high	120 watts/m ²
50–100 cm high	200 watts/m ²
100–150 cm high	250 watts/m ²



Southeastern Asian rainforest terrarium housing the white-lipped tree viper, *Trimeresurus albolabris*, and planted with *Asplenium nidus-avis*, *Epipremnum pennatum*, *Scindapsus pictus*, *Alocasia x amazonica*



Southeastern Asian rainforest terrarium housing the ashy pit viper, *Trimeresurus puniceus*, and planted with *Nepenthes* hybrids, *Asplenium nidus-avis*, and *Davallia* sp.



Day gecko, *Phelsuma breviceps*, on a *Euphorbia onocladata* in the southern Madagascan succulent forest terrarium pictured opposite



Heated outdoor enclosure housing desert horned lizards, *Phrynosoma platyrhinos*, and planted with cacti, agaves, and *Fouquieria splendens*



Eastern Asian seasonal forest terrarium housing the Taiwan beauty snake, *Elaphe taeniura*, with *Ficus benjamina*



Southern Madagascan succulents: *Euphorbia stenoclada*, *E. onoclada*, and *Lomatophyllum* sp.



Ferns, bromeliads, and pitcher plants

terrariums. Animals and plants both get lots of light from these lamps, which is particularly important in savanna and desert displays. Rather than the cheaper NDL metal-halide bulb, the terrarium keeper should choose the daylight (Type D) metal-halide bulbs, which have a higher light output with a wavelength spectrum that more closely reproduces that of natural sunlight.

Care should be taken when using UV lamps. Plants can be more sensitive than reptiles to UV radiation, so should not be placed too close to UV lamps. The cycad palms, *Cycas* spp., are an exception to this rule. These plants need plenty of intense UV radiation during leaf formation, and it is worth installing special UV lamps directly over them to keep them beautiful — the extra UV light will also be beneficial for many reptiles. Metal-halide lamps also emit UV radiation. If they are used without a protective glass, the plants will suffer damage and not live long. Some plants, such as certain bromeliads, produce their own protection from UV radiation, and their leaves turn red or purple.

The other two factors in plant care, temperature and water, are closely associated with each other. As temperature increases, so does the quantity of water required. Conversely, misting the terrarium with water decreases the temperature. High temperatures, at least in spots, are often required for terrarium animals, and these temperatures are often too high for plants. In the wild, even in hot desert regions, there is often a wind that produces evaporative cooling on plant surfaces. Such air circulation is usually lacking in the terrarium. Plants should at least be kept away from basking spots.

In rainforest terrariums, sprinklers, misters, and fog machines work very well (HENKEL and SCHMIDT, 1997). Especially epiphytic plants such as bromeliads, orchids, and certain ferns, should be sprayed regularly, with pure rainwater if possible (SCHWARZ



Argentine Gran Chaco terrarium housing green racers, *Philodryas baronii*, and planted with *Rhipsalis* sp. and various ground bromeliads



Madagascan dry forest terrarium housing the Madagascan boa *Acrantophis dumerilii*, and planted with *Aloe* sp. and *Euphorbia onoclada*



Varanus auffenbergi



Sunda Islands (Indonesia) palm savanna terrarium housing *Varanus auffenbergi* and planted with a palm



U. S. prairie terrarium housing western hognose snakes, *Heterodon nasicus*, with dry grass and a dry shrub

and SCHWARZ, 2001). Many bromeliads will dry out in just a few days in the heat of summer. On the other hand, epiphytic plants tend to be sensitive to standing water. SCHWARZ and SCHWARZ (2001) recommend wrapping the roots of epiphytic bromeliads in moss, and tying them to branches or compressed tree fern slabs with nylon cord. Normal sphagnum moss is not good for this purpose because it tends to fall apart once it has dried. It is better to use long-fiber

sphagnum, available where orchids are sold. Cable ties are also good for attaching plants with moss, bark, peat, or coconut fiber to branches, or for tying several branches together. These comes in a variety of colors, are durable, and can be drawn tighter than nylon cord or wire. Be sure to file the cut ends smooth.

Get more ideas for planting terrariums by visiting botanical gardens, where displays are often very naturalistic.

Bibliography

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