

The Pebble Pond: KIDPROOF WATER

by Jeffrey Salmon

*You can have it all – the sight
and sound of moving water,
aquatic plants, birds
— and child-safe, too!*

A few years ago, while planning my annual addition of another display pond at our garden center, I was also contemplating if I was ready for the ultimate pond at my new home. The thought of my wild two-year-old, Michael, and a pond concerned me.

I thought through all my choices of “kid-proofing.” Fences, of course, came to mind first. In fact, I almost settled on using one-inch bamboo lashed together for an oriental flavor.

The spot for my newest display pond concerned me, also, because I was coming close to moving our store entrance and the display might have to move. This finalized my decision to create a “pebble pond” on top of the blacktop and to test my idea for a “drownproof” water feature. (I can’t call it “kid-proof” because kids *plus* pebbles are magnets.)

The display shown on the cover is made quite

simply. First, we constructed a two-tier, pressure-treated timber frame on top of the blacktop. Underlayment and EPDM pond liner then lined the frame. The all-important feature rocks were selected and moved into place. Next, the



Even without the water running, the pebble pond nestles beautifully into the landscape.



Garden statuary can be set within the 'pebble pond.'

feature was filled with plastic drain tile to allow more water storage with less stone. Almost anything could be used as this filler, including plastic pots. A 3800 GPH pump was attached to a 1.5-inch PVC pipe, which also acts as the nozzle. Changing the height of the upright pipe allows adjustment of the water height. Finally, river

rock was used to cover all of the piping filler.

Because we set up this pond under shade-cloth, sunlight does not hit the water. Algae growth is virtually non-existent, making for carefree maintenance of the feature. Such constructions in direct sunlight will acquire a natural algae growth on the stones. Depending upon

personal preference, you may decide to leave it 'natural' or to perform regular cleaning. If plants are not set within your pebble pond, of course, you could treat the water with chlorine to control algae growth. The feature would then be a sterile water feature rather than a 'pond' with aquatic plants.

Since installing this display, we have recreated this look in every size you can imagine, even tucking one into a small, three-foot area. The pump used with this type of feature can vary widely and really affects only the thickness of the geyser. Smaller pumps can achieve dramatic results by using a foaming nozzle. Our

favorite plan is to use three rocks proportionate to the garden area and shaped to hide the water source. Making space to install a spotlight at the nozzle is well worth the dramatic nighttime show.

For smaller sized areas, we have a preformed round liner that comes with a sump cover to allow creation of a similar feature in minutes – even indoors. It is sized to fit a standard whiskey barrel container but can also be used as a component within other containers. Another preformed unit is the 'Wildlife Pond' that has a sim-



The pebble pond is constructed above ground with only enough depth to accommodate potted plants. Plastic pots or drainage tiles are used as filler with river rock on top. The pump is easily concealed in a sump area among the rocks. With the water level visible among the rocks, you can easily monitor topping off needs.

ilar covered sump. The unit is longer and is designed to act as a birdbath with water recirculating through the pebbles.

In all cases, designing these features so they blend into the surrounding landscape makes a big impact. Using the same stone in the water feature as is used in the rest of the landscaped area makes the viewer wonder where all the water is going. The geyser is the focal point, so you can easily substitute driftwood, urns, or other garden décor for the boulders and achieve

Planting Your Pebble Pond



Pull back the stone to create a planting pocket.

the desired look for your yard.

When it's time to add greenery to this area, you realize you have built a "bog," and almost any marginal aquatic plant can be used to soften the area and to add color. For background height, we often select from lotuses, irises, daylilies, and cattails. Tropical aquatic plants like *Cyperus* (both umbrella palms and papayas), *Eichinodorus* (marble sword), and taro are easily kept in their rock-camouflaged pots. Favorites for low accenting include marsh marigold and water cress (they love moving water, so tuck them in near the fountain), water mint, water forget-me-not, chameleon plant (*Houttuynia*), parrot's feather, creeping Jenny (*Lysimachia nummularia* – select the yellow-leaved 'Aurea' cultivar for sunny sites), caladium, and many more.

The final 'secret' of this feature is its winter look in our northern climate. Breathtaking ice formations change daily. Unlike running a waterfall during the winter and risking water loss from the pond, you need only ensure enough flowing water remains to cover your pump.



Tuck in your potted aquatic plant.



Move stone back around the pot and over its top so that the plant appears to be growing through the rocks.



Child-safe Container Features

Although this display is set up to demonstrate various spouting statues, the use of a tee-connection on the pump below allows you to set up more than one spouting ornament, if you wish.

This 'pebble pond' is truly a year-round water feature. You can enjoy the sight and sound of moving water, a habitat for many aquatic plants, the presence of birds, and incredible ice-sculptures – all without worrying about the safety of young family members or visitors.❖

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The hole in the sump's lid allows the use of a fountain assembly attached to the submersible pump below or the use of tubing from the pump to the water feature above.



Sized to fit a standard whiskey-barrel container, the pre-formed sump unit comes with a protective cover to provide an open area of water around the recirculating pump. Notches in the sump's lip allow you to hide the electrical cord.



A variation using the pre-formed sump construction: set within an EPDM-lined frame, smooth Japanese pebbles surround the fountain head. A narrow space is left free on two sides to accommodate an arrangement of aquatic plants potted in one-gallon containers. Water hyacinths can be tucked in to help camouflage the pots. Extend the black pebbles around the potted plants, if you desire.



Place a small pump of 80 to 125 GPH in the sump area and fit the cover in place. Plug electrical cord into a GFCI-protected source, affix water tubing to your desired flowing feature, and arrange pebbles over the feature. Use coarse sand or small pebbles to create a bird bathing area.



A shallow pre-formed unit is designed for use as a flowing water bird bath and drinking source. Notched areas around the sump's lip allow for placement of electrical cord and water tubing.

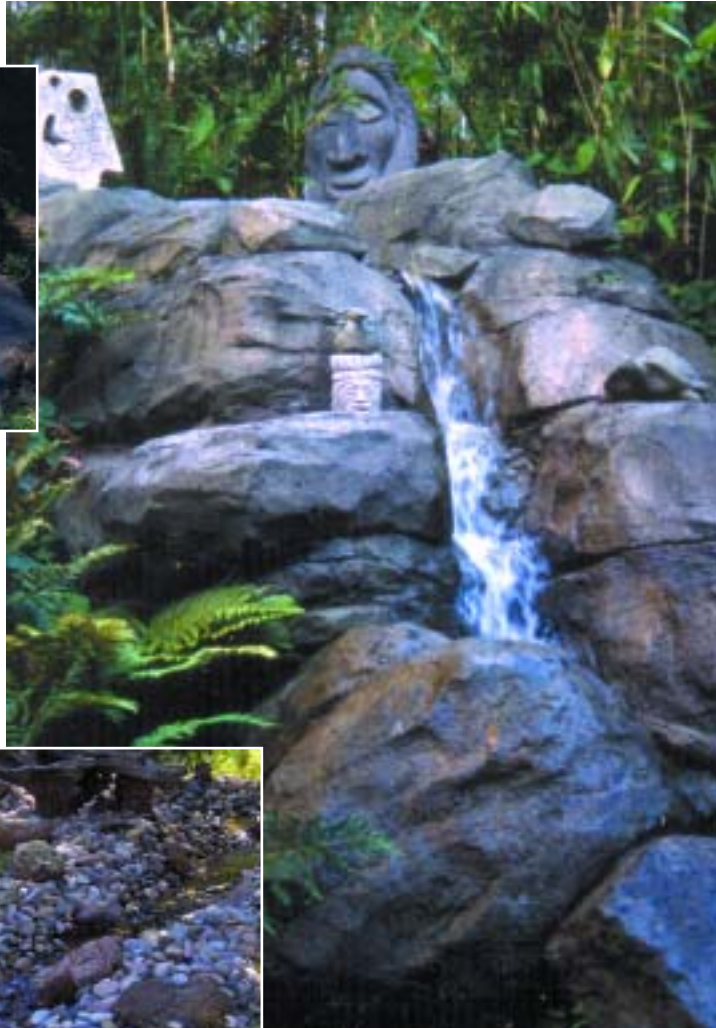
Child-proof Reservoir Water Features

A hidden, protected water source is the secret to these shallow water features.



The reservoir container needs to be large enough to hold twice the amount of water required in your feature's design. Compute the water necessary for a stream by multiplying length x width x .25 (3 inches maximum depth) to determine the cubic feet of water. Multiply that figure by 7.5 to find the number of gallons. The recycling, submersible pump is tucked in the bottom of the reservoir with camouflaged or hidden tubing directed to the head of the stream, waterfall, or ornament. An oversize grate is fitted over the top of the reservoir and secured and camouflaged, usually with heavy stones.

The pebble stream is fully lined with EPDM or other pond liner membrane with the liner brought up well above the water level. Aquatic plants can be planted directly into the rocks of the streambed or you can plant them in shallow pots or 'bags' that are tucked into the rocks. If you opt for siting your stream in a shady area where algae won't be a problem, select shade-tolerant plants. Monitor and prune the plants so that they don't take over the stream and cause the water level to rise above the hidden liner. Size your pump according to 100 gallons per hour per inch of the stream with an extra 100 GPH added for every ten linear feet the head of the stream is from the bottom reservoir.



A narrow waterfall can be operated from a reservoir system with rocks or plants concealing the water's return to the reservoir below. Compute your pump size by 100 gallons per hour per width of water flow at whatever the height will be of your completed feature. Manufacturer's pump sizing charts help you determine the proper size of pump.



An elevated millstone will invite birds to drink and bathe, as well as children to swish their hands in the shallow water. Water is plumbed up through the center of the stone to overflow into the concealed reservoir below the surrounded cobble rocks. Again, the submersible pump is set in the bottom of the reservoir. The bubbling flow is created by the force of the water flow or with a fountain nozzle. You may select bubbler or geyser heads.



Many fountain designs are available at local garden centers. Usually a whiskey-barrel container holds enough water to run small fountains, but you'll want to be sure that your hidden reservoir is wide enough to accept all the flowing water from up above. Also, provide a strong enough reinforcement and grate to support the weight of the fountain above. Conceal the reservoir setup with cobbles or large pebbles.



By drilling a hole up through a post, threading tubing through it, and connecting to a bamboo spigot, a simple flowing feature is created. Water flows into a shallow basin where it overflows through the rocks into the hidden reservoir below.

Ponds, Water Gardens.... AND HOMEOWNER'S INSURANCE

by Wally Oyler

Many of us might remember from childhood our parents' fussing over a buckling sidewalk in front of the family home. "What if somebody trips in front of our house?" Mother lamented. "We'd be liable!"

Today, with the popularity of including a pond in the garden landscape, a new concern arises. What if somebody falls in the pond? What if that person is a trespasser? The answer is still the same. *The homeowner is liable for events on his/her property.*

Legally, a pond is considered an "attractive nuisance," just as is a swimming pool. An attractive nuisance is defined as "a notable exception in the law relating to trespassers that imposes a special duty of care on a person maintaining an



Wally Oyler's backyard is fully fenced, the fence providing an inconspicuous backdrop to perimeter plantings and décor.

artificial condition on land which attracts children. Under the attractive nuisance doctrine, children enjoy the status and protection of invitees and, in some cases, the landowner has been held absolutely liable even though the children were trespassers."



The Kinneys' koi pond in Oklahoma City is inside a locked wrought-iron fence.

Across the country, many communities have taken steps of establishing legal ordinances. In some cities, any water source deeper than 18 inches requires fencing. In other cases, the depth has been established as 24 inches. These same ordinances mandate the height of the fence required. For insurance purposes, a fence at least four feet in height is required, while city ordinances may stipulate six feet in height. An essential part of such ordinances and satisfaction of insurance requirements is that the fence have a gate that is kept locked. Even if your home-

owner's insurance does not state such specifics, the homeowner is bound first by the local ordinances.

For insurance purposes, a landowner should take every measure to make sure the area where the pond is located is fenced to avoid anyone from just wandering onto the premises uninvited. There is no guarantee, but if the homeowner takes necessary steps to secure his/her property and a claim does occur, their chances in a court of law are much better for their innocence.

The issue of water gardens or ponds is not addressed on the homeowner application of our insurance companies. In checking with a State Farm agent, it was not on their application either. One counsel with the Department of Insurance legal department thought this needed to be addressed by insurance companies and added to the application. Although it takes time within an industry as large as homeowner's insurance to address issues of rapidly growing trends such as water gardens, impetus may be supplied by legal test cases such as a young family's suit against a neighbor who installed a pond in the unfenced yard next door.

It is commonly recognized that water features offer magnetic attraction to children. When guests, including my own grandchildren, come to our home, Nancy and I carry on conversations with our eyes constantly checking for the children's whereabouts. Part of the responsibility of pond ownership is ensuring the safety of those who view it, invited or not. A tragedy in your own pond bears a lifetime of pain. It also bodes heavy financial repercussions. Whether



Even though Donna Howard's backyard is fully enclosed with a fence and granddaughter, Allison, is closely supervised around the pond, Donna has installed a locked gate on the fenced deck as well.

or not your insurance company addresses the pond issue, the ultimate responsibility comes back on you, the homeowner. In general, your standard homeowner's insurance policy should cover a liability of this nature. However, it's always wise to check with your insurance agent to be sure there is coverage in your policy.

Ponds are enjoyable, fun, and beautiful additions to any yard, but make sure you take necessary steps to make them safe places for children, also. ☛

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Artists AND Their Gardens

Anne Ryan Miller
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This is the era of environmental concern. Many people have realized that the pristine and beautiful places that we take for granted may not be here in the upcoming years. The condition that they are now in may no longer be of comparable quality in the future.

Anne Ryan Miller became aware of this while attending the University of Michigan, where she received her B.S. from the School of Natural Resources. While studying environmental education and environmental ecology, she developed a lifelong concern for the health



Living in the hills of Brown County in southern Indiana, Anne's home and studio are surrounded by trees and hills, both gentle and steep. Her vegetable garden is tucked into the side of one such hill. Anne takes her horse's rich manure and piles it at the top of the hill where rainwater washes through it to carry the nutrients to the lush garden below.



Anne always finds time for the second love of her life, True, her Arabian horse.

of the planet.

The work she has been doing in the flat glass medium well expresses her love for the natural world. Rather than expressing the negative qualities, she chooses to remind us of the ethereal and beautiful, the mysterious and subtle aspects of nature.

By using a metal overlay technique, she can hand-cut very intricate designs. Using landscape and wildlife motifs, she creates a pictorial effect. By using the metal on the front and the back of opalescent glass, she can create an enormous amount of depth. By allowing the light to diffuse around the metal on the back side, she obtains a shadowy, misty effect, while the front remains a strong silhouette. This is an original and unusual technique.

In addition to work done in the metal overlay technique, the copper foil technique, developed by Tiffany, is used. Many of the birds and flow-

ers than Anne does in transparent, hand-blown glass are very subtle and beautiful, highlighting a delicate touch for design and color.

There is a mystical quality to glass. It is a frozen liquid that acts like a solid. It transmits light; the mood changes as the sun and seasons change that light. Sometimes it is very active, at other times reflective and passive. You might

Metal Overlay Designs by Anne Ryan Miller

never tire of a piece of glass hung in natural light. It will appear different each time you see it. It will change as the seasons change, constantly offering you a new view.

Soft reflected light from the snow beyond the window grants a special glow to the metal overlaid lake that glistens like a memory of but a short time ago.



A crisp autumn day...blue misted shores...and lightly dancing oak leaves, overlaid on front and back.

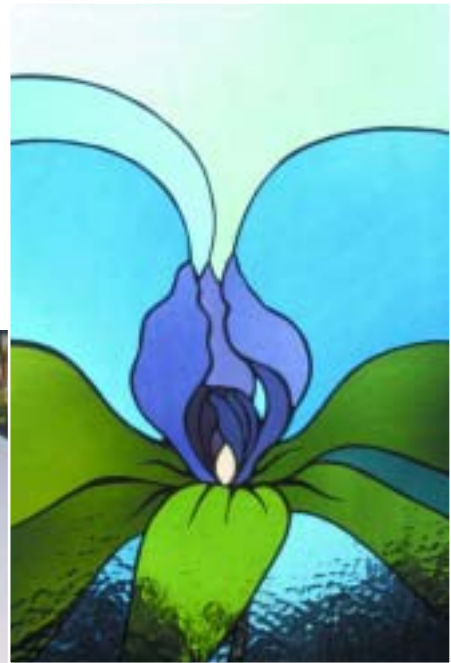


Soft pink swirls in the glass create the illusion of early morning in this metal overlay mountain lake scene. Distant trees and shores are overlaid on the back of the glass to achieve depth of field in the tranquil vision.

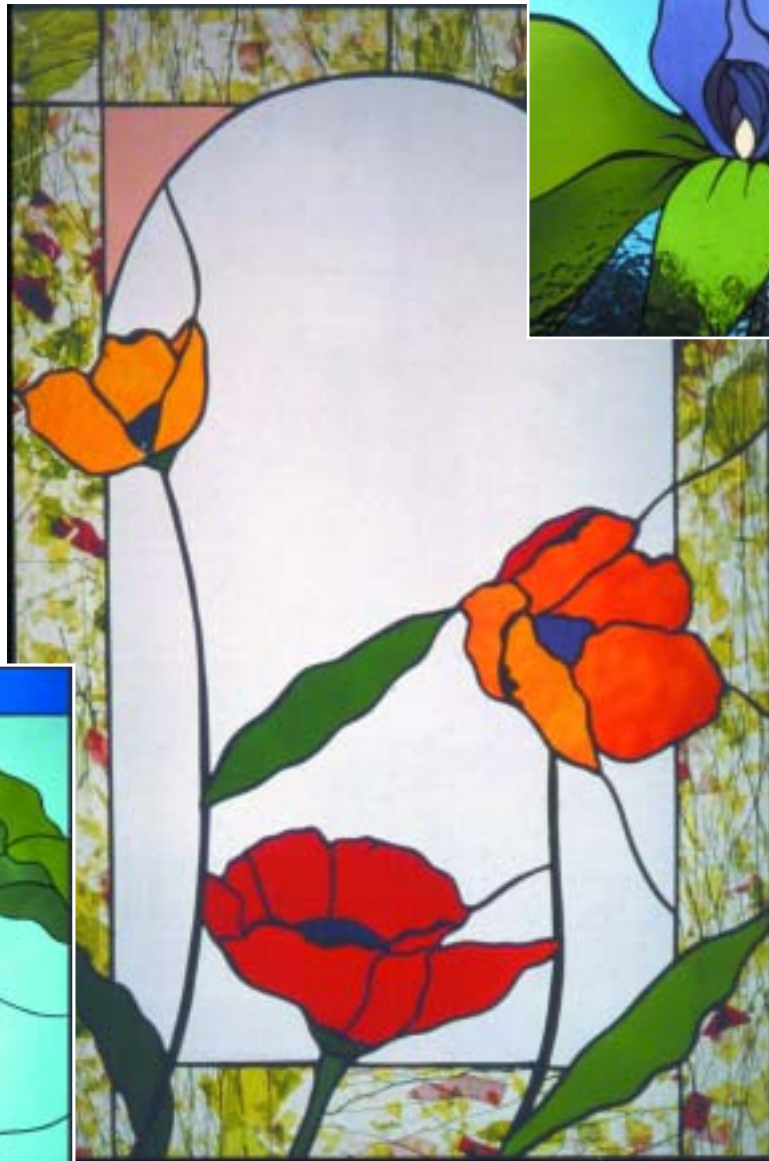


A pond...with metal overlay lily pads...and other aquatic plants, framed with a Tiffany-style border.

**Traditional Stained Glass, *Almost*,
with the Anne Ryan Miller Touch**



A unique iris...



Untraditionally, poppies...



A summer lotus...for all time.



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Larry Spears works magic with his hands, throwing stoneware on his potter's wheel, hand-building appendages, and waxing creative with his glazes. Working in primarily functional forms with porcelain and stoneware clay, Larry brings a rich color palette to his wares with a wide variety of various glazes and glazing techniques. Throughout most of the year, Larry uses a typical kiln. Special magic happens, however, twice a year when he fires up the Anagma kiln he built himself in the hillside behind his and wife Janet's home.

An Anagma kiln is a Japanese style wood-fired kiln that is built into a hillside with approximately half of the structure buried in the ground. The kiln is stoked with wood from the front, with a chimney in the back portion of the kiln, which creates a natural pull of heat and wood ash through the kiln. The kiln's 2300-degree fire must be continually stoked for about 40 hours, using many cords of firewood. A unique glaze and texture are created when the ash moves through the kiln, landing on the ware and melting. This type of glazing is unhampered by human manipulation and is solely the creative process of the kiln and the fire. Because it is such



a major production to fire up and run the Anagma kiln, Larry and friends totally fill the large kiln that offers many shelves and levels. For the past four years, Larry and Janet have opened one of their two kiln firings to the public. In August, before school resumes, area school children come out to the Spears to spend the day helping with the firing and joining in the fun.

Larry's work has been exhibited throughout the United States at various national exhibitions and shows. Spears Gallery and Studio are located less than one half mile beyond the Horseman Camp Entrance to Brown County State Park on your way to Story. Gallery hours are from 10 to 5 daily, and you are always welcome to stop in and browse.

The Spears Garden



Do birds take advantage of the stoneware jug hung on the arbor?



A shady corner next to Larry's studio is brightened with pink impatiens and a blue pot serving as a pedestal for an asparagus fern.



In the middle of the garden, a gate that captured the Spears' fancy is set off with a large, stoneware pot.

Spears Pottery – with a special touch



"Fish Basket" is thrown stoneware with hand-build appendages, finished with an ash-glaze, reduction-fired to 2300 degrees. *Photo by Kevin Montague.*

Larry's tabletop fountains are made of hand-thrown bowls, tiered waterfalls, and unique black pebble "rocks," which are not rocks at all. They are handmade, hollow, kiln-fired stoneware rock forms that may be arranged as you wish to alter the sound of the recycling water! Larry is frequently asked where he found "those marvelous stones." Larry's stoneware tabletop fountains are ideal for using with the small fountain foggers, too. Foggers tend to splash and require high sides to their enclosing feature – these are perfect!



"Tadpole Tea" is thrown stoneware with hand-built appendages. It was wood-fired to 2300 degrees in Larry's Anagama kiln. Note the glaze treatment caused by the ashes in the kiln. *Photo by Kevin Montague.*

Winterizing Plants

by Paula Biles

(Note that many refrigerators' vegetable bins are set at 45°. Tubers stored at that low temperature will be fine for a couple months. Around the end of January, begin checking them regularly for firmness. If you notice a softening in any of the tubers, you should remove them from the sand and start them, even though it may involve growing them indoors longer than you would if you could have stored them at a more optimum 50 to 60 degrees.)

There are two big questions to ask yourself when planning to over-winter your pond plants: 1) How cold does the water really get in your pond? 2) Do you have any tropical water lilies or marginals? (Unfortunately, there are also three little questions to ask, but we'll ignore them for now.)

If your pond never freezes and you don't have any tropical lilies or marginals, then don't do anything. Hardy lilies grow just fine in natural ponds throughout North America. The temperature of the water, not of the air, determines their survival. In fact, most will survive even if the pond freezes, as long as the roots don't freeze.

Since many ponds are shallow and may partially freeze, it is important to get the water lily

crowns below the freezing ice. The easy way to do this is to take the hardy lilies and marginals off the shelves or stands and set them on the bottom of the pond. Cut off any remaining lily pads first. Hardy marginals, submerged plants, and lotus can be treated the same way. Trim them back to about 4 inches above the pots and place the containers on the pond floor, where they will do fine, unless the pond freezes solid.

If your pond does freeze to the bottom, then hardy lilies and marginals should be taken out. Leave them in their containers; wrap them in damp newspapers, burlap, or peat moss; place them in a plastic bag; and keep them between 40-50°. Remember to check on them throughout the winter; they must stay moist, but not wet, or they'll rot.

There is another method occasionally used.



Erecting a plastic tent over your northern water garden can extend the season of your aquatic plants. Many northern gardeners are surprised to find *Azolla* lasting throughout the winter!

Take hardy lilies out of the pots and bury them in the garden below the frost line. Make sure to mark where you put them. They can be dug up, repotted, and returned to the pond in the spring, when the afternoon water temperature is above 45°.

Now here's where we bring up those other questions, but only for water gardeners in the frost belt.

How much work are you willing to do for the plants?

Do you have a frost-free place to store them all winter?

Do you want to treat the tropical plants as annuals?

Once again, your answers determine which course of winterizing action to take.

Tropical aquatics require special winter treatment, unless your water temperature stays above 50°. Tropical submerged and floating plants are easiest to overwinter. They can be kept in water on a sunny windowsill or in an aquarium with strong light. All you need are a few pieces to get started next spring. However, depending upon your answer to the questions above, it might not be worth the hassle since it's so easy and inexpensive to get new ones. If you would treat tropical marginals as houseplants during the winter months, bring them inside to a bright location and keep them moist.

Storing tropical water lilies during the winter

is more involved. Several methods for overwintering lily plants and tubers have been developed. How you answered the questions will determine which method you choose. In fact, if you decide to treat them as annuals, you don't have to do anything except throw them out after the frost gets to them.

If the tropical lily is planted in a container



Hardy water lilies, such as this *N. 'Firecrest'*, are true perennials that experience a dormant period in the winter. In autumn, after cutting back the stem growth, set them in the deepest part of your pond where they won't freeze.

without holes, take it out of the pond, trim off any foliage, top it off with water, put it in a plastic bag, and store it in a dark, frost-free place. Check periodically to make sure it doesn't dry out or rot. The plant could also be moved to a greenhouse, indoor pond (see Alternative #2), or repotted into a smaller pot and put in an aquarium.

The water temperature should be 70-75°, and high light levels are necessary, especially for the lilies to bloom.

Storing tropical lily tubers is another way to overwinter the plants. After the first frost, take the lily pot out of the pond and rinse away all the soil, leaving the walnut-like tubers. Let them air dry inside for two days, then remove any remaining roots. They can be stored in distilled water, in slightly moist sand, or in damp peat moss in a cool (55-60°) dark place, such as the vegetable bin in the refrigerator. Use a plastic bag or container. Make sure to label it and allow

for some air circulation. The key is to keep them from rotting or drying out with the temperature below 60 so they don't start to grow. A month or two before your pond warms up, sprout them in a small container of water on your windowsill. Then repot them and they'll be ready to go when the water temperature gets to 70 degrees.

In the Zone – USDA Plant Hardiness Zone Map

Different plants, like people and fish, do well in different climates. Some require cold; others can't stand it. To help let gardeners know the tolerances and preferences of various plants, the United States Department of Agriculture developed an 11-zone map in 1960, based upon average annual temperatures over the past 60 years. It was revised in 1990 with nine additional zones, each determined by its lowest annual temperature. Because the Hardiness Zone Map is a great starting

point to know what plant may survive in your area, it is often referred to in plant catalogs, stores, and books. Other more detailed plant zone maps have been created. The Sunset Zones are very common, although they are used only in the Western U.S.

However, for aquatic and other plants, there are additional considerations, such as day length, elevation, influence of nearby bodies of water

and mountains, high temperatures, humidity, rainfall, soil type, wind, and local terrain. For example, the ponds at my house are in full sunshine, protected from harsh northerly winds by a fence, and just a few yards from the warming effects of Sarasota Bay (Zone 9b). A friend's pond across town is just 15 miles away (Zone 9a). It is slightly higher in elevation and away from the modifying effects of the Bay. It is also shaded but not protected from the wind. Because water temperature is what controls aquatic plant metabolism and my water temperature is always higher than my inland friend's, my plants continue

growing longer during the winter and start earlier in the spring.

Check a zone map to find out what zone you live in, or check with a nearby nursery. This will help decide which aquatics to buy and how to over-winter them. No matter what zone you live in, consider your own pond as a microclimate.

During the winter, when the water tem-

perature drops and the days shorten, do whatever you can to maximize the amount of sunlight your pond plants (especially lilies) will receive to keep the water temperature up. You may be able to extend both ends of the growing season. Also, keep this in mind when designing your water garden and even when placing the plants within your existing pond. One area might get lots more sun and be warmer than others. Use it wisely.



N. 'Panama Pacific' is one of the best of tropicals for continued bloom throughout the winter in zones 9 and 10. Photo by Perry D. Slocum.

Alternative Winterizing Techniques

- Throw away your tender pond plants after old man Winter freezes them to death. Buy new ones next spring after the water is warm enough (70° for tropical lilies, 50° for tropical marginals). This simple and easy procedure for winterizing tropical aquatics has many advantages and only one disadvantage.

Advantages:

You don't have to mess around with keeping them in the basement or garage.

You won't worry whether they'll make it safely through the terrible Winter of 2000.



Provide a waterproof liner to a hanging basket and winter tropical plants like *Bacopa* or the pictured water poppies (*Hydrocles nymphoides*) in a sunroom.

them sprouting within minutes of walking inside your high-humidity house (thanks to your indoor pond).

Disadvantage:

This method is more expensive. However, consider each plant a flower arrangement, like you buy at the florist. Then each is a bargain since you get a whole season's growth, beauty,

You don't have to get dirty at the end of the season or at the start of the new one.

You can try out new varieties each year, until you find exactly the plants you want.

You can buy potatoes by the bag and not worry about



The dwarf tropical, *N. 'Dauben,'* while a very pale blue, is often grown year-round in well-lighted aquariums.

Photo by Perry D. Slocum.

fragrance, and enjoyment from it.

- Create a little pond in your living room, spare bedroom, or den – just for the winter. Even a small pre-formed pond or kiddie pool could work. A small pond with strong artificial light and a little bit of fertilizer can hold your tropicals until spring. Enjoy them every day, while the outside pond is covered with snow and ice. With any luck you might even get some new growth and a few blooms. In addition, they'll be ready to start in the spring, much earlier than usual.☺

This article is reprinted with permission from KOI USA magazine. Paula Biles writes regularly for KOI USA, as well as teaches water gardening and aquatic plant classes at Selby Botanical gardens in Sarasota, Florida, and around the U.S. She is president of the Florida West Coast Koi & Water Garden Club.