The Water Garden

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The CWGS meets monthly, April, May, August and September, usually at the Denver Botanic Gardens (DBG). The dates and specific locations of the meetings will be announced in The Water Garden. The 1st Sunday in June, at the Morrison Center at DBG, is a fund raising event with the sale of tropical and Hardy Waterlilies, as well as other water plants. This sale is open to the public. The 2nd Sunday in July is reserved for the CWGS members’ pond tour and picnic. The 1st Saturday in December is the annual Holiday Party.

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Your comments on the quality, and suggestions for improvement for this newsletter are welcome and should be sent to the editor.

VISIT THE CWGS WEB SITE
http://members.xoom.com/cwgs
See inside for more interesting Web Sites

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1999 MEMBERSHIP
Many Garden Centers give discounts to Garden Society members, so remember to show your 1999 membership card when shopping at Garden Centers. See page 7 for membership information.

CWGS ANNUAL PLANT SALE
SUNDAY JUNE 6, 1999
WHEN: SUNDAY, JUNE 6 @ 10AM (9:30AM FOR CWGS MEMBERS)
WHERE: MORRISON CENTER AT THE DENVER BOTANIC GARDENS
NE CORNER OF 11TH & YORK
ENTER AT YORK ST. GATE
DBG AND CWGS MEMBERS CAN ENTER THE SALE FREE OF CHARGE. THE SALE WILL CONTINUE UNTIL 2PM OR SOLD OUT.
CASH & CHECKS ONLY—NO CREDIT CARDS

Plants, plants and more plants...plus fish, frogs, snails and pots...Everything for your pond will be available at the 1999 CWGS Plant Sale.

For water gardeners that are wanting to create another water feature, but are lacking space, we will be featuring a new hanging aquatic basket. Just add a few plants from the large variety of plants we will have tagged for “basket use”, for a fun new way of adding yet another water feature.

Plant offerings will include a limited number of waterlilies (hardy & tropical), bog plants, marginal plants (hardy & tropical), floating plants and submerged plants. Pots in assorted sizes and aquatic fertilizer tablets. And what pond would be complete without fish, frogs and snails? A limited number of these items will be available.

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DONATIONS WANTED
IF YOU HAVE DUPLICATE OR UNWANTED PLANTS TO DONATE, PLEASE BRING THEM TO CLASSROOM "B" AT DBG, ON SATURDAY JUNE 5TH FROM 10AM TO 5PM. YOUR DONATIONS ASSIST IN MAKING OUR SALE MORE SUCCESSFUL.
PLANT SALE (Continued)
Checks or cash will be accepted for purchases. To further assist us in planning for next year, everyone will be asked if they are a member of CWGS, as they check out. After you check out, please exit through the back gate to the parking lot.

Your support through purchases at our annual plant sale enables CWGS to donate to a variety of projects, to further the study of aquatic plants. It also allow CWGS to enhance the water gardening areas at DBG and Hudson Gardens for public enjoyment.

MARGINAL OR BOG PLANT?
Cyndie Thomas
Marginal or Bog, which is which plant? Water gardeners often use these names interchangeably. Actually there is a defined difference between the two.

A true bog plant is a plant which grows in a constantly moist to wet area of soil enriched through sphagnum moss and decomposing matter that is generally highly acidic (1). Water provided to these are only what nature provides from run off or natural precipitation. Pitcher plant (Sarracenia spp.), Water Arum (Calla Lily), Cotton Grass (ericorum polystachion) and Bog Bean (Menyanthes trifoliata) are a few examples of true bog plants.

A marginal aquatic plant is a plant that desires their roots growing under water and having leaves emerging above water. Marginal plants grow in clay-based soils in freshwater marshes, ponds and streams. Many marginal plants will grow in a bog, but true bog plants will not grow to be their best in the marginal area.

“Bog” areas created adjoining a backyard pond are generally planted with marginal plants, in growing containers, in our region. Our arid conditions usually require water replenishment from the hose and nutrients to be added to potted plants on a regular basis. These areas are intended to provide a natural transition from the water scape to the terrestrial landscape. They can be filled with garden dirt and planted directly, but often the aggressive growing marginal plants will overtake some of the more desirable marginal plants.

Creating a “true bog” could be accomplished by mixing sphagnum peat moss, dried leaves, rich humus top soil and sand to fill in an area lined with PVC or EPDM, or by sinking a plastic container. Holes should be placed at about half the distance of the depth. Water to be added, to supplement rain water would have to be monitored using a test kit for pH levels, to ensure it was not above 7, and preferably around 5. Cider vinegar could be added as needed, to decrease pH of tap water which is between 7.5 and 8. This would add stability to the acidic levels needed in the bog. An acid plant fertilizer would be suggested for use on an “as needed” basis.

(1) “Aquatic Plants and Their Cultivation” by Helen Nash, and “The Water Garden” by Frances Perry

EDUCATIONAL OPPORTUNITY
Volunteers are continuing to put the water plants in the pools at the Denver Botanic Gardens. CWGS members meet Sunday mornings at 8:30am, to pot waterlilies and other water plants. This is an excellent opportunity to learn about water plants, make friends with other water gardeners, and to ask the members who are there everything you wanted to know about water gardening.

Interested in learning? Call Lynn Jewett @ 303 671-7964

ELECTIONS
CWGS Board Members are elected for two-year terms. In September, we will be electing a President, Treasurer, Program Chair and a Member-At-Large. Nominations for these positions can be given to any Board Member (phone numbers are on page 1). Please consider running for a position on the CWGS Board of Directors.

EDUCATIONAL BROCHURES
CWGS has a set of nine educational brochures, with information provided by CWGS members John Mirgon, Mary Mirgon, Cyndie Thomas, Nancy Styler and Stan Skinger. The titles of the brochures are “Pond Care, Spring, Summer, Fall and Winter”; “Lotus”; “Tropical Lilies”; “Pond Design & Construction”; “Preserving Water Lilies”; “Green Water, The Ecology of the Pond”; “Hardy Lilies”, “Water Plants”; and “Container Water Gardens”. These brochures will be available to members at all regular meetings, at no cost. If you are unable to attend meetings, these brochures can be ordered for a cost of $1.50 to cover shipping and handling, from Cyndie Thomas, 1023 S. Kittredge Way, Aurora, Co 80017.

GARDENS TO VISIT
Again this year, a list of CWGS members who invite visitors to their water gardens is available. You can obtain the list by calling Nancy Jewett @ 303 671-7964

APRIL FINANCIAL REPORT
April 1, 1999
Beginning Balance $111143.43
Income 3659.00
Expenses (1277.59)
April 30, 1999
Balance $13524.84
For more information contact Mike Gibson, Treasurer @ 303 986-7895
TIPS ON POND CONSTRUCTION
Rose & Paul Swenby
Copyright by Paul Swenby, a P.R. Landscape Co.
(Ed. CWGS members who attended the May 16th meeting received information on pond construction in Colorado, from long time CWGS members Rose & Paul Swenby, a P.R. Landscape Co. In the past 14 years, Rose and Paul have built over 126 ponds along the Front Range. Members were also treated to a video program of some of the ponds they have designed and built. The following article is from information provided by Rose and Paul.)

NOTE: The following information is for Water Gardens, obtain further information before constructing Koi Ponds.

PROGRESS CHECKLIST
1. Check building codes and fencing restrictions.
2. Talk to an electrician about outlets for pump, 20 amp. Circuit or 2 (more is better)
3. Lay out site. Check views from house. Figure size of liner.
4. Call for locates. 2-3 days turnaround on this.
5. Order liner.

6. Dig the pond. Continue to check levels as you go. Remember shelves.
7. Use extra dirt for waterfall berm.
8. Level coper shelf.
9. Lay in carpet padding. Check and double check for carpet tacks. (They suggest obtaining carpet padding from carpet recycle stores.)
10. Lay in liner. Fill deepest part with water up to bottom of plant shelf.
11. DO NOT TRIM LINER AT THIS TIME!
12. Make folds for waterfall (s). Set up pump in bottom of pond, run pipe.
13. Set coping stones around edge of pond, back fill for stability.
14. Working back from pond set creek, waterfall stones, working folds as you go.
15. Set patio risers and lay flagstone edging.
16. Fill with water. Remember you can always drain it to make adjustments to copers and patio.
17. Run waterfall. Adjust stones. Aren’t you glad you didn’t trim the liner?
18. Backfill around creek stones.

DO NOT CUT LINER YET!
19. Spend a week looking at your work. Does everything look aesthetic?
20. Make adjustments. Play in the water. As long as you haven’t cut the liner, everything is changeable. This is the advantage of pond liners.
22. Leave 1/4" liner above soil level until dirt settles.

DESIGNS
Simple shapes.
No bowl shape—are too shallow, too
round—are good for fountains.
No vertical sides. 20 degrees of vertical sides for stability.
Bog garden? Leaking soil into pond. These are better separate from the main pond.
Plant shelves should be flat and 15" to 18" deep.
Not too shallow, maintenance headache.
Separate bog garden and line hole with fabric with holes in it.

WATERFALL BASICS
1 piece of liner thru pond and waterfall. 1 1/2" black poly pipe for more water volume.
Pump size, bigger is better. 1200 gal/hr is a reasonable amount.
Valves to control.
Folded liner to form falls.
Splash containment.
Aesthetics (types) thread, ribbon, sheet fall.
Outdoors loud, indoors quiet.
Directing the water, creating grotto effect for sound amplification.
Viewing direction, maximizing all views, framing waterfall, check for undesirable objects in view.
Natural curves, no hard angles.

Water is unpredictable, so don’t cut fabric too soon!

FILTERS
Can be added later, many varieties, in pond and out of pond.
Best filter is a good balance of plants, 70% of surface coverage and oxygenators.

WATER PROBLEMS
Add dechlor. Removes chlorine and chloramine.
Don’t believe crystal clear water equals a healthy pond.
Chemical algae killers are a poor solution. Algae dies, decomposes and fuels the next algae bloom.
Plants are the best source to combat algae. They complete with algae.
UPDATE ON STOCK TANK AS LOW COST GREEN HOUSE
Butch Weaver
(Ed. This is additional information on an article in the May 1999 issue of “The Water Garden”.)

You can get the Allied Precision 71502 stock tank heater from Nasco Mail Order at 1 (800) 558-9595. The price is $86.00.
I bought the 300 gallon Rubbermaid stock tank at Sutherlands Lumber. Many farm supply places and lumber yards carry these. The 300 gallon size works well, but is pretty big (6 foot diameter). The finished cover can be a little heavy to handle. If space is limited, or you don’t want to muscle around the large cover, the 150 gallon size is another nice alternative at about 2.5 x 6 feet in size.
The galvanized stock tanks are a cheaper alternatives, but they have some problems. One problem is that galvanized tanks have a rust problem after a few years. A second problem is that the galvanized finish is toxic to many types of fish (none lived for me). On the other hand, I have found that Victorias and other tropical waterlilies do fine in a galvanized tank.
In our area, the cover is needed from early April through early May. After that, you can do without the cover, but will use more electricity. On warm May and June afternoons, be sure to take the cover off, or you may cook the plants.
The water where I live in Boulder only has chlorine, so a day or two at temperature will cook out almost all of the chlorine. I am told that the water in Denver (and other areas) also has chloramine which will not cook off, so you will need to use a dechlorinator there.
WATERLILY HYBRIDIZATION
Kirk Strawn, Ph.D.
Owner, Strawn Water Gardens

In the hot weather of summer many of the otherwise fertile hardy waterlilies are sterile. In College Station, Texas, I pollinate hardy waterlilies mid-September through mid-October, but pollination in the spring would also be good, if it wasn't for all of my time going to digging and shipping.

To hybridize find first day flowers. They have a pool of liquid covering the stigma. This is a large area in the center of the flowers. Put the pollen from a second day flower into this pool of liquid and stir it around. It would be good to do this as soon as possible to beat bees and other insect pollinators. However, the second day flower may not release its pollen until later in the morning. You can use pollen from third day flowers. However, the bees may have removed all the pollen from anthers of the third day flowers. They can also remove the pollen from second day flowers before morning is over. To keep insects from removing the pollen, you may have to cover second day flowers with netting before they open in the morning. The liquid covering the stigma may dry up before the flower closes. Rub pollen on the dry stigma and you may still get fertilization. I tend to remove one anther full of ripe pollen from a second day flower and stir it around in the fluid covering the stigma of the first day flower.

Covering a flower before it opens the first day with either netting or a plastic bag to prevent pollination is probably the best procedure. However, I have gotten very good results when insects have not been excluded prior to my putting pollen on the stigma of the first day flower. After putting pollen into the pool of liquid covering the stigma I cover the flower with a plastic bag. Use the tie that comes with the bag to snugly attach the open end of the bag to the stem below the flower. When the seeds are released, the stem will keep them from being lost from the bag. Even if you are slow to collect the seeds and the stem rots, many of the seeds will remain in the bag. The seeds have a covering that makes them float the first day after they are released from the seed pod. They could float longer if the weather is cool. I leave them in the bag until the covering rots off and the seeds sink. I tie one end of a plastic ribbon to the bag and the other end to a stake. This keeps the bag from getting lost on the bottom of the pond. The colored plastic ribbon helps one locate the seed.

The washed seeds can be stored wet in the plastic bags. Keeping them in the refrigerator prevents sprouting in the bag. Tropical seeds can be stored dry, but hardy seeds need to be stored wet. I plant seed in pans of soil out of doors in light shade. I have planted seed under artificial light indoors, but the little plants have died when exposed to sunlight out of doors. I scatter the seeds on soil an inch or two thick. I cover the seeds with a thin layer of sand after scattering the seed on the soil. I put an inch or two of water over the seeds. Laying a piece of newspaper over the soil before slowly adding water keeps the seeds from being washed out of the soil. When the seedlings have two or three surface leaves, they can be transplanted into pots. I use gallon pots. In my hot climate they may bloom by the summer following sprouting, but in cold climates it takes longer. Most seeds of hardies planted in the summer and overwintered outside in my part of Texas sprout in the spring, but some sprout the summer planted. Some hardy seeds may not sprout before the second year or later.

Marliac had a policy of not releasing fertile waterlilies. His descendants continued this policy. I believe that a few of Marliac's hardies have some fertile pollen. The plant sold as Arc En Ciel is fertile. Most hardies by other hybridizers are fertile. Most tropicales are fertile. My best successes getting excellent new hardy varieties have been using Texas Nymphaea mexicana pollen on fertile hybrid hardies. I have not tried the reverse cross.

For propagation from hardy tubers, cutting off the main plant from the rest of the tuber will cause the eyes behind the cut to develop into plants. The eyes may die otherwise. You have a head start on growth of new plants if you leave the posterior parts of the tuber rooted in the soil. You can get worthwhile survival of eyes pieces, even if the tuber is dug up before the eyed pieces are planted. Transplanting the main plant gives more room for the new plants to develop. Any eyes cut off the main plant can be potted individually in shallow water, in gallon pots. Include a cross section of the tuber with each eye to give it nourishment and help survival.

(Thank you to Kirk for allowing "The Water Garden" to print this article!)

HARDY LILIES: PLANTING AND CARE

Excerpted from the CWGS Educational Brochure "Hardy Lilies: Planting & Care", written by Nancy Styler

These plants are actually quite easy to grow. If the lily is already potted up, just place it in the pond at a depth that keeps the pads at or near the surface. Adjust the depth gradually if needed, and the pads will grow to reach the new surface level.

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If the lily arrives bare-rooted or as a newly divided rhizome, it will need to be planted. Be sure to keep the plant moist and out of direct sunlight while working with it. Be aware that handling the rhizome can stain bare hands.

Since the rhizome grows horizontally, use a container that is wide and shallow (12-18" wide by 6-10" deep). The pot can be with or without holes (or even a mesh basket) as long as you line it with something to keep the soil in the pot and not in the water. Use heavy soil (Colorado clay is well-suited for this) and enrich it with aquatic fertilizer. Avoid light materials such as perlite, vermiculite or peat, which will float up out of the pot and foul the water.

Remove old leaves from the rhizome, as well as the thick fleshy old roots, which will only decay. Leave only the emerging leaves and buds, and the newer, hair-like roots which absorb nutrients. Plant the rhizome against the side of the pot, with the growing tip pointing upwards (about 45 degrees) and toward the center. This will give maximum room for growth before repotting is necessary. Cover the soil with a layer of rock or pea gravel to reduce erosion of soil into the water. Lower your lily gently into the pond at an angle, to allow the air to escape from the soil. Keeping a newly planted lily in shallow water at first may speed its early growth.

Once planted, hardy waterlilies don’t need much care. They like six to eight hours of direct sun each day (although there are some varieties that will tolerate less). They prefer quiet water, without splash or strong currents. Old yellowed pads and spent blossoms must be removed periodically (with their stems) so they don’t decay in the pond. The plants should be fertilized monthly during the growing season (every two weeks in warmer weather) with aquatic fertilizer tablets pushed into the soil.

TROPICAL LILIES: PLANTING AND CARE
Excerpted from the CWGS Educational Brochure "Tropical Lilies: Growing, Planting & Propagating", written by Stan Skinger

Day and night blooming tropical waterlilies should be planted in a 2-3 gallon pot. Fill the pot half full with a rich heavy garden soil, and add 2-4 aquatic fertilizer tablets. Potting soil, compost, vermiculite or perlite should not be used, as they float out and foul the water. Continue to fill the pot with soil to about 2" from the top.

The tuber should be set upright, in the center of the pot with the roots buried gently in the soil. Make sure the tip of the crown is at soil level. Firmly pack soil in the pot. Next, if desired, add one-half inch to one inch of gravel to prevent the soil from escaping from the container and to keep fish from digging in the pot and uprooting the plant.

The plant can now be lowered into the water to a depth of approximately 6" over the top of the pot. As the plant grows, it can be lowered to a depth of 12". Tropical lilies cannot tolerate cold temperatures and should not be planted until the water reaches a temperature of at least 70 degrees. Planting too early can cause dormancy and restrict the potential growth of the plant. Tropicals bloom from late spring through early fall, depending on the weather. Fertilize every 2-3 weeks.

1. Fertilize with 2-3 aquatic fertilizer tabs every 2-3 weeks.

2. Prune back to 3'-4' diameter, at the same time you fertilize, taking the outer leaves, to keep it compact and symmetrical for best display and flower production.

3. Stop fertilizing the tropical lilies at the same time you stop fertilizing the hardy lilies (in mid August).

The Colorado Water Garden Society Has It’s Own Web Page @ http://members.xoom.com/cwgs/ The site has information on the organization, meeting dates, articles on water gardening, plant descriptions and photos, and a new discussion list. Anyone interested in joining the discussion list on water gardening can do it through accessing the page. Ask questions, or share your successes. Currently, a mini-study on lotus growing is starting. Information on this will be shared on the site and discussion list in the months to come.

INTERESTING WEB SITES
The Commercial Web Sites are not meant to be endorsements, but are listed because they have interesting information and links.

WATER GARDEN SOCIETIES
International Water Garden & Water Lily Society
www.iwgs.org/index.htm
Victoria Conservancy
http://members.xoom.com/victoria_spl/index.html

WATER GARDEN INFORMATION SITES
Garden Pond Supply
www.gardenpondsupplies.com
The Plant Place
www.theplantplace.com/lilydiv.htm
Garden.Com
www.garden.com/index.html
Half Barrel Pond Page
www.pmmener.com/-jvc/hbpnond.html
Aqua Eco-Systems, Inc.
www.aquaticco.com/index2.html
Waterfalls By Paul & Rose
http://home.ripnet.net/~oses/
Aquatic Artisans
www.angelfire.com/ml/ponds/
Directory of Nymphaceae Pictures
http://members.xoom.com/printnp/lilyfaq.htm
Pond Pro
www.pond-pro.com/

More to come next month. Send your favorite water garden Web Sites to the editor.

LONG GLOVES
For anyone interested in hand and arm protection, while working in water gardens, 24" long, heavy duty, rubber gloves are available from: Littles Good Glove Co. 1 (518) 736-5014. Ask for model #500.