

Glossary of Terms, cont'd

Macrophyte is an aquatic plant that grows in or near water and is emergent, submergent, or floating.

To determine water replenishment by the inch when topping a pond, multiply length x width, divide by 12, and multiply by 7.5. This equals the number of gallons added by the inch. For a round pool multiply the diameter x diameter, divide by 12, multiply by 5.9.



Drought & Ponds

Water Conservation Tips for the Pond

For more information about the Colorado Water Garden Society or other aspects of pond keeping along the front-range go to:

<http://www.colowatergardensociety.org>

or send an e-mail to:

info@colowatergardensociety.org

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www.colowatergardensociety.org

Looking beyond the obvious amenities of a pond, such as its relaxing, melodic sounds and the visual pleasures of viewing fish gliding through the water, it also provides a vital life necessity for insects and wildlife – water.

Water gardens provide water in an otherwise arid environment during drought conditions when natural creeks, streams, and ponds are extremely low to dry.

An established pond surrounded by a naturalized landscape uses less water – nearly half as much as a bluegrass or fescue lawn of the same area. A typical pond will require one inch or less of water to replenish water lost to evapotranspiration each week. If a pond requires more water than this, there are tips and conservation measures, which can help decrease water use.

TIP>Due to possible evaporation, when adding water, it is best done in late evening or early morning when it is less windy, more humid, and temperatures are cooler.

Pond Location & Design

TIP> Disconnect all automatic refill devices. If you had a leak it would be impossible to know it until you got your water bill. Auto-fill valves increase risks of an undetected leak causing fish death from chlorine and chloramine toxicity. Drought is a time for a more hands on approach to pond keeping.

Soil and plant material adjoining a pond's edge may wick water from the pond. A waterproof barrier is required for separation.

Partially shaded ponds and wind-protected ponds require less water than open, exposed ponds. Shallow water, less than 6 inches deep at a pond's edge, lined with rocks or gravel, evaporates at a more rapid rate than edges with a foot more of depth.

Waterfalls & Fountains

TIP>Turn off waterfalls and fountains except when you are around to enjoy them and especially in dry and windy weather. A good idea would be to put all pumps on a timer that run for only a few hours every day. Waterfalls and fountains result in increased evaporation. If your waterfall is part of a bio-filter, keep the waterfall running or you run the risk of your beneficial bacteria dying.

There are more water wise ways to keep oxygen in the pond for the benefit of fish. Install air pumps (bubblers) which provide oxygen without excess evaporation. Aquarium pumps can keep a pond aerated without water loss and may use less electricity. Air pumps can be run year round, keeping water unfrozen in the Winter, allowing for gas exchange for fish. Aquarium air pumps, of various sizes, are available at most pet supply stores, along with tubing, and air stones. Most will need to be protected from the elements, but putting them under a plastic bowl or inside a plastic box with a hole drilled for cords and tubes works well

Don't oversize your pond pump. It is recommended water recirculate once every two hours, depending on the number of fish present. Increased velocity and excessive waterfall height increases water loss due to aerial disbursement increasing evaporation. Fountains, long watercourses, and pond turbidity also increase water loss.

Aquatic Plants

TIP>Add plants for surface coverage. In most situations, water lily pads (or other specialized floating leaves of rooted macrophytes, i.e. Water Hawthorn (Aponogeton distachyos) and Banana Plant (Nymphoides aquatica)) will help decrease evaporation. Lily pads on the pond surface are not only beneficial in reducing water loss, but add beauty to the pond.

Marginal or bog plants that grow above the water or around the edges of the pond may slightly increase water use due to evapotranspiration (ET). However, plants may shade water and block winds hitting the open water surface, which decreases evaporation.

Water lettuce, water hyacinths, and most floating plants lose more water to transpiration.

Glossary of terms

Transpiration is the process of plants absorbing water, usually through the roots, resulting in evaporation into the atmosphere primarily through the leaves.

Evapotranspiration (ET) is the water lost to the atmosphere by two processes – evaporation and transpiration. Evaporation is the loss from open bodies of water, such as lakes and reservoirs, wetlands, bare soil, and snow cover; transpiration is the loss from living-plant surfaces.

ET is affected by:

- Air temperature and humidity
- Soil temperature
- Wind speed and direction
- Solar radiation
- Precipitation