

## Growing Orchids Indoors and Behind Glass - Part II

By Stephen Van Kampen-Lewis



The second installment of the indoor orchidarium gardening series will focus on my other tank that is 35 gallons in size. Many of the same concepts that I used with the 10-gallon tank still apply to this larger project, so I won't focus on them. What I mean by this is that I still used a "well" on the bottom of the aquarium that is filled with water and clay pellets for added humidity. The water in the bottom is regulated by a hole in the side of the tank that was drilled at Fishy Business ([www.fishybusinessstx.com](http://www.fishybusinessstx.com)) for about \$25. A plastic bulkhead is installed at the same time of the drilling for no additional cost. I also suspended a high output (HO), 2 foot, four bulb, T5 fluorescent lighting system above the enclosure, though I did end up taking one bulb out of the system because I was frying a lot of the plants that prefer low light levels. Finally, just as with the 10 gallon project, I made fairly extensive use of egg-crate to elevate the plants above the water well.

In addition to the overall size of the enclosure, there are several key differences between each setup; most of them due to the fact that the larger orchidarium is nearly sealed off and is designed so that I do zero manual watering of the system. In order to make this happen, I had to a) design a fan capable of moving air within the system that doesn't dry everything out, b) get a lid capable of holding an overhead water system and c) get an automated mister. Remember, my goal for this tank was to keep the humidity high so that I could grow moisture-loving miniatures!

By no means am I a particularly wealthy person, so to keep costs down I kept an eye on Craigslist to purchase both the aquarium and its corresponding stand. Aside from taking the tank to Fishy Business to have the hole drilled and a quick rinse, there is not much prep work needed to get the tank into good shape for this project. The aquarium stand, however, was a different story. It was a sturdy stand, but had been poorly treated on its upper surface (you know, the part people see!) so I sanded it down by hand, drilled a hole on one side (so excess water could flow from the aquarium down into the sump) and then repainted it. None of these tasks were particularly arduous and I finished the whole thing fairly quickly. I did, however, have to borrow a drill from a friend! In the picture showing the sanded stand, you will notice that there are two semi circles drilled into the stand (towards the bottom of the picture). This is where I placed two metal conduit poles that serve to hold up my lighting system. It's not particularly nice to look at, but since I didn't have a place on the wall to hang the fixture, I had to make due with a setup that utilizes a suspension system that I attached to the stand itself. I'm sure there are better systems out there that could be built, but alas I couldn't find one so I apologize if I am remiss to post pictures of my contraption!



## Continued from page 1

My next task was to create a system in which a small computer fan could operate without getting wet in an orchidarium that is misted/watered from above two times per day! It took some thinking, but I was able to find a sewage pipe elbow that comfortably fit a 12V computer fan and I placed it on some eggcrate that holds the pipe and fan just above the well. I also placed the openings of the sewage pipe fairly close to the glass of the tank so that water from the automated misting system would not enter into fan enclosure as quickly and cause it to rust out prematurely. Finally, I put eggcrate on top of the pipe so that I could hide it from view by placing orchids on top of it. Rather than explain this further, I'll use pictures (worth 1,000 words each!) to show you what I did.



I should also mention that a stand-alone 12V computer fan is meant to be plugged into a computer and therefore does not come with a plug. There are simply two wires that come off the back of the fan. To plug it in, I got a cheap cell phone charger and cut off the part that plugs into phone. Then, I took the wires from the fan and connected them to the corresponding wires from the cell phone charger. Voila! We have power! I also have the fan on a timer so that it is blowing during daylight hours.

The next thing I did was to commission a lid of plexiglass from Regal Plastic Supply Company (<http://www.regal-plastics.com/>). I got a 3/8" thick piece that had two holes cut near the back corners for the sprinklers and a small notch cut in one corner (all cuts are per my directions) so that the wire from the fan could leave the tank without touching the lid. I also didn't want the entire top of the tank to be covered because orchids enjoy fresh air as much as people do. Instead, I had the plexiglass cut in such a way that there is a 1" gap running along the whole front of the tank.



However, I quickly realized that even with the long gap, heat quickly built up inside the enclosure and brought the temperatures up too high. In order to remedy this, I cut a piece of wine cork in half and placed the two halves under each corner of the lid so that it is propped up at a slight angle. As the heat rises, it rolls along the top of the lid and out of the tank, thus bringing the temperatures back to tolerable levels.

Finally, I purchased a MistKing misting system (<http://www.mistking.com/>) to water the orchids. I

chose this company for the watering protocol because I have consistently heard that they are the best what they do and I for one have no reason to contradict what I heard. Its fairly easy to setup and comes with a very modern, digital timer that allows me to water my terrarium 2x per day for the length of time that I deem necessary (which is 1.5 minutes in the afternoon and 0.5 minutes early in the morning).

## Continued from page 2



When the MistKing came in the mail, I set it up per the directions and installed two nozzles, one at each end of the tank facing towards the middle. I think if I had to do it again, I would use three nozzles so that the middle of the orchidarium gets more water. That being said, by inability to plan correctly is in no way MistKing's fault and I highly recommend this brand to anyone seeking to duplicate such a setup! One of the great things about having an automated watering system that "mists" rather than "sprays" the orchids is the water savings. I estimate that I'm using about 3 gallons of water each month to water 30 or so orchids at a rate of two waterings each and every day. Not too shabby!

I also want to mention that I have several different types of vascular plants living directly in the water well at the bottom of the orchidarium. Just as with the ten-gallon tank, these plants serve as a competitor to any algae that would otherwise invade such a moist, bright and nutrient rich environment. I can trim the mosses and plants as I please and they are significantly more attractive than algae. Once again, if anyone has any questions, feel free to chat with me at the HOTOS meetings (1<sup>st</sup> Tuesday of every month except December) or you can email me at [isurus09@gmail.com](mailto:isurus09@gmail.com). My flicker account can be found here: <http://www.flickr.com/photos/isurus79/>

