

Plant Research Tropical Waterlilies in a Temperate Climate

By Viktor Van Canneyt

When I bought a house with a pond in 2022, I found out that besides hardy waterlilies, there are also tropical species with beautiful colors, good smells, and a large amount of flowers every season. Around that time, I came across the IWGS organization and I started to do some research on ways to keep these exceptional plants.

I live in Belgium, and like the Netherlands, we have a temperate climate with mild summers and mild winters, which is not the ideal environment for these plants. Initially, this was no issue because I could pre-cultivate the plants indoors in a heated aquarium. My goal, however, was to eventually keep the plants outside in the pond during the summer.

The first year, I did some temperature measurements in the water. I concluded that, even in the middle of summer, the temperature could drop below 20 degrees Celsius during the day and to 15 degrees during the night. This is of course way too cold for tropical waterlilies.

The only way to keep these plants in Belgium is in a greenhouse or a heated pond like in botanical gardens, which requires a lot of energy. Therefore, the challenge was two-fold: on the one hand to create a viable environment for the plants; on the other hand to do this in an energy-efficient way.

During my research, I found out about the thermoplanter. A thermoplanter warms the earth with a 70 watt thermocontrol heater to extend the growing season or to sustain the plant during winter in an outdoor pond in warmer regions. Unfortunately, a thermoplanter is only available for sale in America. I also read in *Water Garden Journal* Volume 39, No. 1, about a Vic-Pod with a temperature controller that was made to ensure the *Victoria* waterlilies would bloom in colder climates.

I decided to make heated pots myself.

My system is inspired by the thermoplanter and the



Vic-Pod. It consists of three buckets. In between the two outer buckets, there is insulation. In between the two inner buckets, there is water and a self-regulating heat cable of 24V DC at 25 watts per meter as a heating element. This cable has a maximum temperature of 60 degrees Celsius.

A heating element at low-voltage has the benefit of being safer with no risk of electrocution.

I made three of these pots of about 100 watts each.

These pots are energized via a relay that is controlled by the temperature controller. The temperature sensor sends the data to the temperature controller to make sure that the temperature in the pots does not drop below 24 degrees Celsius. The temperature controller stops heating when a temperature of 26 degrees Celsius is reached.

With this system, it is possible to create a viable climate for the plants. As stated earlier, I also wished to do this in an energy-efficient way. I decided to make an off-grid solar panel installation to provide the 24V DC system with energy. I went to a professional solar panel distributor to ask for advice.

I used a large battery bank (4 x 6 volts) of 24V DC and a solar charger of 30A with a load output of 450 watts. Two solar panels with a 400 watt peak provide the energy. The correct fuses and cable thicknesses need to be used.

During the day, even with somewhat cloudy weather, the solar panels charge the batteries or send the energy directly to the heated pots if necessary. During the night, the energy that was stored in the batteries is used.

At the start of the summer of 2024, after the pre-cultivation in a heated aquarium, I transferred the tropical waterlilies to the pond. Around this time, the water temperature during the night was about 15 degrees Celsius. The experiment proved to be a success. The tropical waterlily 'Tanzanite' from Florida Aquatic Nurseries did exceptionally well and a pink variant I cultivated from seeds I ordered online also rewarded me with lots of flowers.

I look forward to trying different variants in the future and to amaze people with the beauty of these plants.

Editorial Committee Note

In the future Viktor plans to undertake multiple new projects. He's interested in creating his own hybrids and finding an efficient way to germinate seeds.

Future tech projects include comparing his heated waterlily pots with unheated ones and testing how well the system works without batteries. A greenhouse is on the way... We hope to hear more from Viktor in the future!

