

A penchant for tropical plants and a love of travel have coalesced in an extensive collection of exotic plants collected on and after trips around the world. The only problem: I live in Zone 5.

Photo by Lori Lovely



Photo by John David

Lori Lovely carries a potted tropical hibiscus to its summer location on the deck.

Photo by John David

# In Winter, Her Garage Goes Tropical



Left: Metal halide lights produce light similar to the sun's rays in spring and summer, beneficial for vegetative growth. High-pressure sodium lights simulate the sun's light in fall, encouraging plants to fruit and flower indoors. Below: For best results, plumeria seedlings should not go dormant the first year. This group of young plants spent their first winter under the bright HID lights of the converted garage/greenhouse. Top right: A shrimp plant, unaware of the below-freezing temperatures outside, blooms radiantly all winter in the converted garage/greenhouse. Bottom right: *Angraecum distichum* displays tiny white flowers under the HID lights.



Photo by John David



Photo by Lori Lovely

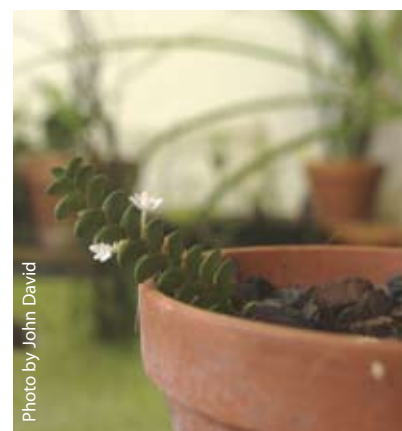


Photo by John David

## By Lori Lovely

As inveterate vagabonds, moving around the country in the wake of motor sports jobs, my husband Chris and I were accustomed to living light in one apartment after another. Then, after settling into a house with a large yard, I began indulging my inclination to collect by accumulating unusual tropical plants. I live in central Indiana, and tropical plants thrive in the region's heat and humidity.

As my plant collection grew, window space became as scarce as cats at a dog show. Even with supplemental grow lights, plants were sun-starved and space was cramped. It was time to consider options. Getting rid of plants was not one of them. Neighborhood covenants prohibited building a greenhouse, so I spoke to owners of small nurseries about renting greenhouse space. When that didn't look plausible, we

began to think the space inside our two-car garage could do more than serve as a place to store tools and whatnot.

### Garage-to-Greenhouse Transformation

Chris researched lighting systems, which led us to Worm's Way, a hydroponics store near Bloomington, Ind. We selected two 400-watt sodium lights, two 400-watt metal halide lights, ballasts for all four, and a Sun Twist 359-degree rotating arm. We mail-ordered water line and three sizes of emitters from Dripworks: an adjustable, a medium 1/2 gph (gallons per hour) and a small 1/4 gph.

The Sun Twist hangs from the near-center of the garage ceiling, mounted with 2-1/2-inch wood screws to a solid board that spans the rafters, with the four lights extending outward on its arms. A timer starts the arms rotating before a separate

timer turns the lights on at 5 a.m. every day. Similarly, the lights turn off before the arm ceases rotation at night. Keeping the lights moving protects the plants from sunburn and provides the full spectrum of light for best growth.

The wattage of the lights has to match the ballast. We chose 400 watts because it was the maximum wattage our circuit panel and the garage wiring could handle. There's a formula to figure out how many watts you can run on different amp breakers. If you overload the circuits and wiring, you run the risk of repeatedly blowing breakers or possibly even burning down your house! Additional light comes from fluorescent strip lights on the sides of the garage to augment the lighting in regions beyond the Sun Twist's reach.

A metal halide self-ballasted light of about 175 watts hangs above a small water garden Chris built into a corner to save



Photo by John David



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*Clockwise from top left:* Potted tropical plants enjoy summer grouped around the deck. The garden comes to life when potted tropical plants emerge from their winter home inside the converted garage/greenhouse. Potted tropicals are carefully arranged according to light requirements outside as well as inside. After wintering over inside the converted garage/greenhouse, this tropical pink hibiscus welcomes spring outside.



Photo by John David

the tropical water lilies, papyrus and other tropical water plants that spend summers in our koi pond. Two old aquarium heaters keep the pond warm, and a pump fountain and filter keep it clean. It's home to a few small fish.

### Setting the Scene

The plants aren't placed until the Sun Twist is set up, and then they're brought inside on an as-needed basis as autumn progresses. The most temperature-sensitive plants often come in weeks before the rest, which take turns transitioning from full-sun spots on the deck to shadier territory under the pergola or on the north side of the house. When the weather dictates total enclosure, plants are arranged according to light requirements and height. For small

and table-top-size plants, I use outdoor benches, two-by-fours supported by cinder blocks, countertops and plastic tablecloth-draped work benches, table saws.

Plant placement is difficult because of the sheer number and size of my collection. Every year I experiment with the floor plan as I become more familiar each plant's needs, analyzing its success through each winter. Care tags aren't sufficient; you have to live with a plant through all conditions to really know it. Every year I also test different pathways for plant access, searching for the best pattern without wasting good light space.

Once they're all situated, Chris installs the drip feed lines, places emitters in the pots and sets up misters. Since it's inexpen-

sive, we use new line every winter, cut to length for each pot. The trick is not to cut the lines too short because that eliminates any chance of moving the plants, but not to cut too long, thus wasting the line and creating a nest of tangled lines on the floor. Water timers are fitted to a manifold system that branches out to three lines, each with its own timer. The misters are on one timer, the adjustable emitters and 1/2 gph emitters are on a second timer, and the 1/4 gph emitters are on a third timer.

During early autumn before temperatures fall drastically, we periodically raise the garage door slightly to let in fresh air and allow us to use a leaf blower to clean the garage floor. Once temperatures prohibit opening the door, its panels are fit-

ted with lightweight Styrofoam for added insulation, and rolls of reflective silver insulation are added. Finally, we set up fans to aid air circulation and two small space heaters to warm the concrete floor, also on timers.

Any tropical climate—even an artificial one—comes at a price. Our electric bill averages approximately \$100 more per month when our garage greenhouse is in operation. However, there's no noticeable increase in our heating bill because the HID lights generate enough heat to keep the garage above 80 degrees. Very little supplemental heat is required because the HID lights put out considerable warmth—a problem if you're using them in the house but beneficial in an unheated garage. Except for below-zero days, the garage temperature hovers around 85 F. The humidity level stays around 70-80 percent. Winter air in Zone 5 is typically extremely dry, but the greenhouse generates so much

humidity, we run a dehumidifier in the house to prevent mold.

### Winter Oasis

As much as I dread winter and the thought of hauling in large plants that are thriving outdoors, once cold weather has consumed Indiana, the greenhouse becomes a pleasant retreat for me, and a source of adventure and exploration for my cats. Many plants continue to flower. Discovering a purple 'Fuji' hibiscus in flower, or smelling the blooms on my six-foot jasmine sambac tree are delightful winter surprises. There's always plenty to do. Some plants, such as an epiphyllum cactus in a hanging basket and all plumeria, aren't on the drip feed line, so there's still some watering to be done by hand. With so many plants so closely arranged, pests and disease are a constant threat, and because a screen door to the house allows for limited heat-sharing and air exchange, heavy use of pesticides is extremely unpleasant. The

cleaner the garage, the better the defense, so I frequently sweep the concrete floor and pull dead leaves and spent flowers. In the spring, the pond's edge under the low-hanging HID light is an ideal spot to start seeds using a mini-greenhouse and heat mat.

But no matter how enjoyable and beneficial my garage greenhouse is, I'm always relieved to see spring arrive. Plants are gradually returned to their sunny outdoor sites, and Chris gets to reclaim his tools in the garage. Although the small pond stays in place year-round, the lights and other systems are stored until they're needed to once again transform my garage into a tropical wonderland. 🌿

*Lori Lovely tends to her plants at her home in Indiana.*



Tropical hibiscus

#### Lori Lovely's plant list

57 different types of plants, some with subtypes

Abutilon  
Adenium  
Allamanda  
Amazon lily  
Anthurium  
Avocado  
Bamboo orchids  
Bananas – Musa bajoo  
Bauhinia purpurea (purple orchid tree)  
Belizean black orchid  
Billbergia nutans ('Queen's Tears')  
Bird of Paradise  
Bougainvillea—'Raspberry Ice,' 'Orange Ice,' 'Double Red,' 'California Gold'  
Breadfruit tree (artocarpus altilis)  
Brown Turkey fig  
Brugmansia  
Brunfelsia jamaicensis  
Calliandra emarginata (pink Powder Puff)  
Camellia japonica  
Carolina Jessamine (Gel-

seum sempervirens)  
Cestrum nocturnum (night blooming jasmine)  
Citrus – key lime, Tahitian lime, orange, Meyer lemon  
Clivia miniata  
Coffee arabica  
Crape myrtle – pink, white  
Crossandra  
Croton  
Cyperus papyrus  
Duranta erecta "Alba"  
Epiphyllum ackermannii (red orchid cactus)  
Euphorbia  
Gardenia jasminoides  
Heliconia stricta dwarf  
Jamaican  
Hibiscus – schizopetalus, frosty pink, red, 'Fuji,' 'Erin Rachel,' 'Tahitian lava,' 'Lunar dust'  
Yellow star  
Ixora javanica – 'Nora Grant,' 'Maui,' 'J.G. Yellow,' dwarf pink  
Jasmine – Sambac 'Belle of India,' hardy, Cape, Kleim's hardy, nitidum (Royal)

Juanulloa aurantiaca  
Justicia Fruit Cocktail  
Mahogany tree  
Mandevilla  
Michelia figo (Banana shrub)  
Mimosa pudica  
Neomarica gracilis (Walking Iris)  
Nerium oleander  
Orchids – phalaenopsis  
Osmanthus fragrans (Sweet Olive)  
Pachystachys lutea  
Papaya (Caribbean red)  
Pineapple  
Plumbago auriculata  
Imperial Blue  
Plumeria – assorted varieties, about 20 plants in total  
Royal Poinciana (Flamboyant tree)  
Sea grape  
Stephanotis  
Tahiti Tiare gardenia  
Ti plant  
Ylang ylang