Native mesquite tree inspires creation of special greenhouse

By Elena Acoba
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While gardeners can control a plant's nutrient and water needs, it's tough to always provide the right temperature, humidity and light and protect it from damaging wind.

Inventor **Michael Ray** hopes to make it easier with his Nurse Tree Arch, a structure that taps into plant biology as well as environmental conditions to grow plants indoors.

"I'm creating a microclimate that I can control," says Ray, who worked in human resources and organizational effectiveness at the University of Arizona for 22 years before starting his own company, Nurse Tree Arch Design L3C.

Ray, an avid gardener, was inspired by the way leafy native mesquites provide the shade that nurses plants underneath it.

He's also concerned about how climate change is making it harder to garden in the desert.

"The spring gardening window is getting shorter," Ray says. "Many people now are giving up on gardening in the summer."

"I believe the future of gardening is under a canopy," he says.

His arch is a wood-framed structure that acts as a greenhouse in the winter and a "shade house," as Ray calls it, in the summer.

Its walls are made of opaque Solexx panels, some of them removable, that diffuses light and traps warmth. The dome roof is covered by rollable Aluminet shade cloth and removable Solexx panels.

A greenhouse is created by inserting the removable panels and closing the windows and doors.

To allow plants to get sunshine, rain and shade of varying amounts, the panels are removed, the Aluminet is rolled out and the windows and doors are opened as needed.

In an air circulation system, perforated pipes under the beds are connected to two small, above-ground fans. One fan draws in warm air containing evaporated water from the soil and from plant transpiration. The water vapor condenses in the pipes and drips into the soil. The second fan blows the resulting cooler, drier air back into the structure.

Beginning gardener **Scott Rosenbaum** is experimenting with a raised-bed version of the original arch for in-ground beds.

He wanted something that would protect his tomatoes, basil, okra and sunflowers from hungry critters. He got that and more.

"I realized I could, in fact, try to grow in the summer and have good protection in the winter," he says. His tomatoes, in particular, are doing well. "They're monsters. They're protected from the heat and with the arch closed, there is a lot of humidity. It's the perfect hot house."

Ray hopes to have the arch on the market by early next year. He expects them to start at $800 for a kit and $1,200 for onsite construction. More information: www.nursetreearch.com

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WHAT TO PLANT IN JULY

- Finish planting Mexican June corn by July 5.
- Plant muskmelon, pumpkin and summer squash until July 15. On that day, start planting bush and pole beans.
- Start broccoli and winter squash.

Source: "The Tucson Garden Handbook," The Pima County Master Gardeners

