Houses of Glass

A brilliant world of color serves students and researchers while preserving OU's leafy legacy.

By Ben Fenwick
Photos by Travis Caperton

Hidden away in plain sight on the University of Oklahoma's south oval are greenhouses that may hold solutions to medical mysteries and the energy crisis, contain a century-old plant collected by the university's early faculty, and even host a Mesozoic-era species once thought to have gone extinct.

Lynn Nichols, OU's greenhouse manager since 2015, introduces visitors to the palm-like *Zamia furfuracea*, or "cardboard palm," named for its stiff leaves. "It's from an ancient family that existed when the dinosaurs were around and hasn't really changed or evolved since," he says.

In a nearby greenhouse is the *Wollemi* pine. Since specimens of the plant were found in fossil beds alongside the monsters of the Triassic, Jurassic and Cretaceous eras, scientists assumed it ended up with a similar fate to stony relics like the bony Stegosaursus, toothy Tyrannosaurus, or lobed-finned Coelacanth fishes.

Like the ancient Coelacanth, the "living fossil" dredged up in fishing nets off the coast of South Africa in 1938, the *Wollemi* re-emerged, found in Australian rainforests in 1994.

But an even more cherished specimen is the *Zamiaceae*. Collected from Mexico by OU researchers in 1925—nearly 100 years ago—the plant still lives, a green bit of wonder in the university's verdant picture window, the greenhouses.

OU's greenhouses are used for everything from cutting-edge medical research to cutting-edge botany. Seeds of knowledge are nurtured alongside thousands of plants representing dozens of varieties.

An *Amaryllis* grows at the greenhouses in anticipation of the annual OU Botany Club sale next spring.

Nichols says the university's botanical collections started with the founding of the university in 1890 and were housed in OU's original building, which was destroyed by fire in 1903. All the collections were lost. The department moved to Science Hall on the north side of campus about the time that the *Zamiaceae* was collected by an OU morphology professor.

An area between Asp Avenue and the south oval, just behind George Lynn Cross Hall, became home to the greenhouses in the mid-1960s. One greenhouse from those times still stands—its peaked roof tiled with glass panes. A companion building was torn down and made way for two new greenhouses in 2014.

Nichols says the biggest challenge of managing the greenhouses is keeping systems operating and repaired. Electrical outages can cause the temperature in the greenhouses to soar up to a plant-wilting 150 degrees. Then there's another aspect of Oklahoma weather.

"Last year during a severe hailstorm, 160 panes of glass were broken," he says. "It took about six weeks to replace them all." The newer greenhouses came Oklahoma-ready with hail-resistant roofing, Nichols adds.

He says most OU students become aware of the greenhouses thanks to the large amounts of geraniums and coleus supplied to the university's botany classes for study. Some students get involved in hands-on research with specimens grown at the greenhouses,

The greenhouse grows large quantities of *Ornithogalum saundersiae*, known as "The Star of Bethlehem," for OU College of Pharmacy researchers testing compounds from the plants for potential anti-viral and anti-cancer properties.

The *Zamiaceae* was collected by faculty members researching in Mexico nearly a century ago.

RIGHT - Lynn Nichols discusses OU's specimen of the *Wollemi* pine, which traces back to prehistoric times and was thought to be extinct until 1994.

such as a current project examining whether native grasses could be used for biofuels, while others seek student jobs working with plants like an impressive tropical collection.

Students in OU's Botany Club also sponsor the greenhouses' annual spring sale, where Nichols' personal favorite and a holiday staple, the *Amaryllis*, is festively offered to the public. But such blooms are not the only Christmas miracles supplied at the greenhouses. A variety of the "Star of Bethlehem," *Ornithogalum saundersiae*—an otherwise bitter and even poisonous plant of the gardenia family—bears a possible gift being researched at OU for its healing properties.

Anthony W.G. Burgett, a researcher and associate professor of pharmaceutical sciences in OU's College of Pharmacy, has been extracting and testing compounds from the Star of Bethlehem. His research has yielded tantalizing hope that OSW-1, a molecule isolated from the plant, could be the starting point to develop new broad-spectrum, anti-viral and anti-cancer drugs. The research even shows the possibility of being used to treat COVID-19 and its growing legion of deadly variants.

Such a possibility is why Burgett believes a facility like the OU greenhouse is vital to a research university.

"The OU greenhouse has been a great resource," he says. "It highlights the potential of a university, where different parts can come together to move impactful research forward."

To Nichols, the greenhouse is a place of foment and growth, to put it mildly. Research aspirations, he points out, must be rooted in a place where things can grow.

"OU is striving to reach the next level of research," he says. "And by working together with university departments, we can help."

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