COLLEGE OF AGRICULTURE & LIFE SCIENCES

CAMPUS ARBORETUM

Trees For Our Climate

The University of Arizona has a long history of world class excellence in horticulture with an even longer history of using the urban campus to

test tree species for adaptation to aridity. Many Arizona commodity crops and even more landscape ornamental trees used in landscapes throughout the American southwest were first introduced and tested by UArizona faculty. With the development of new tools and additional access to information in this century, we remain empowered to continue this legacy in a new way.

In 2023, we employed the climate assessment tool (CAT), developed by the Botanical Garden Conservation International (BGCI). This tool assess climate adaptation for our area by comparing the current and predicted future mean annual temperature (MAT) here with the MAT of each tree species based on global observations recorded for that species. This gives us an initial idea of the general adaptation of our collection for current and future climate scenarios. Undergraduate Leonardo Sciulli used 831 species growing in either the Campus Arboretum or the **Tohono Chul Gardens.** The tree inventories represent trees that are or have been in our collections. Only 474 species were recognized by the CAT indicating that many of the species we grow are not yet widely documented in the BGCI global tree database. For those 474, Lenny used the CAT to generate a ciimate risk score for each. He selected out those with the highest ratings, based initially only on the mean annual temperature. He then further filtered the results based on the species known ability to grow in areas with less than 500 mm precipitation. The final results included more than a **80 species** that are widely found in areas with both the MAT and annual precipitation of our location in Tucson, AZ. Of those, more than a dozen also appear in areas with a MAT similar to that predicted for Tucson in 2050. **These are most promising as tree species which are not only suited to our current climate but which may also continue to do well in a changing climate.**

To read the full story and view the results, visit:
https://arboretum.arizona.edu/student-projects/2024-collection-climate-risk

Could We Try New Species Here?

In an effort to expand the list and consider plants not previously grown on campus, we added the taxa listed found in the complete inventory of the Desert Legume Programs seedbank and repeated the analysis using the BGCI CAT. After adding the taxa from the DELEP inventory, we identified **an additional 28 taxa** potentially suited for regions which have been observed in regions with a MAT of 21°C and **an additional 30 taxa** potentially suited for regions with a MAT of 23.5°C. **In total, analysis of the Campus Arboretum inventory plus the species found in the DELEP inventory, yielded 108 taxa to consider further.**

Interestingly, **24 taxa** rated rated highly for adaptation in regions similar to **Tucson's current AND future MAT** and which also grow in areas receiving less than 500 mm (20 inches) annual precipitation. Given their greater potential for longevity in a changing climate, we will prioritize these 24 species in future work. Specifically, we will further refine the the list based on other climate factors in the areas where these trees were observed growing globally (ie. high and low temperature thresholds) and on the experience of those who have observed or cultivated these species.

To this end, we are inviting

those who have experience with these trees to share your knowledge through completion of a short survey found at the bottom of this page.
Link to page

https://arboretum.arizona.edu/research/finding-potential-climate-ready-trees

Campus Arboretum Tours

For more than a century the campus landscape has served as a

living laboratory to test what plants do well in the Arizona desert. As a result of this work, the Campus Arboretum has a wonderful collection of unusual and delightful specimens.

Join the Pima Co. Master Gardeners on campus for a guided tour of the campus arboretum trees.
These tours are free, scheduled throughout the year from August to April, and require advance registration. **To view the schedule or for information on tours and registration click here.**

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Promote stewardship and conservation of urban trees in Arizona.

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