Seeding the future
A key component of the Conservatory's conservation mission, seeds are a driver of international collaborations.

A burst of cold air rushes at Angie Koebler as she opens the door to a massive walk-in cooler near the CBS Conservatory and Botanical Collection. Koebler, the Conservatory’s interim curator, reaches for an unassuming plastic box that holds a critical asset—seeds.

Conservatories, botanical gardens, and seed vaults across the globe store and catalog seeds. Seed libraries range broadly in size and locale. Some are the size of an airplane hangar nestled within icy mountains near the Arctic Circle. Others, like the CBS Conservatory’s, fit within a shoebox-sized container inside a walk-in refrigerator. The Conservatory’s collection might be relatively small, but it is mighty, boasting seeds from across six continents collected over several decades.

A critical mission of the Conservatory is to advance conservation efforts. The Conservatory propagates rare plants and shares seeds to support this mission. Koebler oversees a couple of propagation projects involving plants collected from just a couple of hours away and others from across the world.

Germinating seeds is not as straightforward as elementary school units make it out to be. They won’t all predictably germinate in under a week like bean seeds. Instead, different seeds demand different conditions and tactics.

Some require months in a refrigerator nestled in a moist paper towel. Others need soil medium with particles that aren’t too large and aren’t too small but are just right to spark to life. With the help of students, Koebler frequently runs germination trials. They test different combinations of moisture, soil medium and other factors to determine the best method for different species.

For Koebler, sometimes the most passive approach works best.

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Putting roots in at the Conservatory

Betsy Custis works as a conservatory assistant and is pursuing a Master’s of Biological Sciences that focuses on plant science and conservation.

WHAT DREW YOU TO THE WORK?
I took a tour of the space as part of a course and was drawn to the commitment to conservation. Seeing the living collections and learning about the seed bank and education efforts was a huge draw for me. Being part of the conservatory team has been a valuable addition to my graduate coursework and professional development.

WHAT DOES A TYPICAL DAY LOOK LIKE FOR YOU?
When I first get in, I check on key projects. Currently, my co-worker and I are working on a seed germination experiment with seeds from Amborella trichopoda. After that, I like to walk through all the rooms to get eyes and ears on the plants. Then, I will check for pertinent tasks such as watering or re-potting. Everyday looks a little different at the conservatory and that is part of the fun!

WHAT’S SOMETHING YOU’RE WORKING TO IMPROVE?
Some of our amazing plants can be finicky. I’m working toward documenting care for these plants so that in the future staff members have some helpful guidance to ensure happy and healthy plants.

WHAT IS YOUR FAVORITE BIOME?
Mediterranean scrubland, which showcases plants from Western South Africa and southwestern Australia, is my favorite. The subtropical climate brings wet winters and dry summers. There’s something exciting in every season. In the summer, I love inspecting the distinctive foliar textures and colors that evolved to prevent water loss during the dry months. Come winter, the room bursts to life with color.

The collection boasts an incredible number of rare orchids. Trichoceros antennifer is native to South America and sports distinctive foliar textures and colors that evolved to prevent water loss during the dry months. Come winter, the room bursts to life with color.

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“I think sometimes you can overthink it. For instance, with Amborella trichopoda, I have a hunch that we just need to let it drop from the plant naturally into the soil. Then after that, it’s just watching for it every day.”

The need for a daily check-in is no exaggeration. Staff members ensure the moisture content and temperature readings are dialed in. They also share successes and failures with others working to propagate species, increasing the knowledge base.

Similar scenes take place across the country and around the world. Obscure online catalogs and hours of researching and communicating with biologists, botanists and collectors allows Koebler to track down seeds. When researchers need rare species for projects, Koebler always returns the favor to others. —Claire Wilson

< CACTUS IN THE CRACKS

A small cactus, Escobaria vivipara, thrives in the shadow of a granite mine in west-central Minnesota. At the eastern edge of its range, giant granite outcroppings and granite dust from the mine provide a microhabitat for the plant. Thanks to a state grant program (Legislative-Citizen Commission on Minnesota Resources) and partnership with a colleague at the UMN Arboretum, Conservatory staff are working to propagate plants from collected seeds (pictured) and researching ways to place them back into the wild.
WORKING TO KEEP COOL

In the winter we work to keep plants warm enough and are thankful for the greenhouse effect. In the summer, without air conditioning and air circulation, the plants would roast. The warming effect has its pros and cons, depending on the season.