This year as I’ve walked the halls of BRIT and talked to our staff and volunteers, I’ve had a growing sense that things are coming together. Seeds that we planted months or even years ago are coming into bloom. BRIT scientists are about to start work in the new George C. and Sue W. Sumner Molecular and Structural Laboratory. We can only imagine the scientific insights this lab will produce, but we know it will create new professional development opportunities for area teachers, make possible remarkable ESTEM experiences for middle and high school students, and leverage corporate partnerships to train future workers. At the same time, graduate students from our higher education partners—UT Arlington, TCU, and Tarleton State—are planning research programs with their BRIT mentors.

These successes have encouraged us to dream bigger. Not too long ago, a multi-year, $1.3 million National Science Foundation grant to conduct a biodiversity survey of the Philippines would have seemed out of our reach. Now our scientists are booking their airline tickets. We’re not all the way there yet. BRIT worked hard in 2018 through the GROW partnership to improve the Fort Worth Botanic Garden’s educational and volunteer programs—and achieved a level of success beyond our most ambitious goals. Next year may bring an even closer collaboration with the City of Fort Worth as we become possible managers of the garden; we look forward to working with the city as it decides its next steps about the future of this jewel in the heart of our community.

For now, we’re thrilled with what we’ve achieved—and delighted that BRIT’s future is coming into focus.
BRIT TAKES ITS PLACE IN FORT WORTH’S CULTURAL DISTRICT WITH EXHIBITS OF BOTANICAL ART.

BRIT has long been a home for plant science and ecology education, but the institution is increasingly becoming recognized as a home for botanical art. Regular exhibits of high-profile artists are enhancing BRIT’s reputation as a respected member of Fort Worth’s art scene.

BRIT invested in its art program this year with upgrades to the Madeline R. Samples Exhibit Hall. The improvements were ready in time for BRIT to host the work of Mississippi sculptor Trailer McQuilkin and Fort Worth painter Ann Ekstrom this fall.

McQuilkin creates incredibly detailed and remarkably realistic painted copper sculptures of wildflowers, while Ekstrom paints often over-sized, brilliantly colored close-ups of flowers. “The work of the two artists is quite different, but they played off of one another—it was just gorgeous,” said BRIT Adult Education Manager Laura Venhaus.
BRIT’S NEW MOLECULAR AND STRUCTURAL LAB ALLOWS RESEARCHERS A CLOSER LOOK AT PLANTS.
“It’s a game-changer,” said BRIT Vice President of Research Peter Fritsch of the new George C. and Sue W. Sumner Molecular and Structural Laboratory.

The lab opened in December, and by early January BRIT scientists expect to be peering into the DNA and molecular structure of plants.

Within the lab, DNA sequencing equipment will help reveal how plants evolved over time. Meanwhile, a new scanning electron microscope will let botanists explore nanoscale objects such as fine structural details of cell walls and pollen grains. These are so small that in comparison a single red blood cell looms like the Goodyear blimp.

The lab opens new opportunities for research and education. An in-house lab gives BRIT an edge when competing for research projects that involve investigation of plant genetics, structures, evolution, and development. It also enables BRIT to train undergraduate and graduate students in the most advanced techniques. “This kind of training will prepare students for the most desirable research positions,” said Fritsch. Students and faculty from UTA, TCU, and Tarleton State University, all institutions that have partnership agreements with BRIT, will work alongside BRIT scientists in the lab.

Meanwhile, BRIT botanists are eager to put the powerful new equipment through its paces. “I think everyone in the building has something they want to get under the microscope,” said Fritsch.
HOW GROW

Last year, BRIT kicked off the GROW program, a new education and volunteer partnership between BRIT and the Fort Worth Botanic Garden. The first year was an unqualified success that increased the number of volunteers supporting both BRIT and the Garden while doubling educational opportunities for both children and adults—and tripling the number of learners reached.

One of the most exciting advantages for BRIT is that the entire 109 acres of the Botanic Garden are now available for teaching and learning. BRIT students can now study water conservation in the Garden’s water features, explore the different tree varieties that grow in different parts of the landscape, and compare plants across the campus.
THERE’S NO AGE LIMIT ON LEARNING!

GROW dramatically increased the classes and programs available to adult learners, and the response from the North Texas community has been overwhelming. Here’s a look at some recent classes—check online for course descriptions and sign up to learn something new with BRIT and the Garden.

So You Think You Want A Greenhouse?
Spring Pruning: Tips and Techniques
Introduction to Plant-based Eating
Botanical Art: Drawing in Graphite
Good Earth: From Healthy Soil to Healthy Garden

HERE’S A LOOK AT GROW AFTER ONE YEAR.

- Economic value of the GROW volunteer workforce: $689,162
- Increased outreach to new interest groups, including special needs groups such as Down Syndrome children and service-oriented groups such as the Girl Scouts.
- GROW programs were showcased in 11 state conferences and 1 international conference.

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<thead>
<tr>
<th>2018</th>
<th>2016-2017</th>
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<tr>
<td>HOURS CONTRIBUTED BY GROW VOLUNTEERS</td>
<td>27,969</td>
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<tr>
<td>TOTAL EDUCATION CLASSES OFFERED</td>
<td>638</td>
</tr>
<tr>
<td>ADULTS AND CHILDREN INVOLVED IN GROW EDUCATIONAL PROGRAMS</td>
<td>30,000</td>
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PROTECTING PARADISE

0.2% OF THE WORLD'S LANDMASS

5% OF THE WORLD'S PLANT SPECIES

THE PHILIPPINES ACCOUNTS FOR
A $1.3 million NSF grant will help BRIT preserve biodiversity in the Philippines.

Consider this fact: the Philippines accounts for 0.2 percent of the world’s landmass but contains five percent of the world’s plant species.

In this country of 7000-plus islands, more than half of the native plants live nowhere else in the world, a fact that has been recognized by Conservation International by designating the Philippines as one of the world’s seventeen “megadiverse” countries.

Yet the plants of the Philippines are under threat—by population growth, commercial exploitation, and invasive plant species. “We’ve got to get there and record this diversity before it is lost,” said BRIT Vice President of Research Peter Fritsch.

Fritsch will lead a four-year biodiversity survey of the Philippines starting in the spring of 2019. BRIT was awarded a National Science Foundation grant to head up the project in collaboration with scientists from U.S. universities and the Philippines; of the $1.3 million grant, BRIT will receive $950,000. Winning the grant is a major achievement that recognizes BRIT’s decades-long experience in the Philippines, the expertise of its scientists, and its top-of-the-line herbarium and laboratories.

“Working in the rugged volcanic islands isn’t easy,” said Fritsch. “It requires serious planning to get anywhere. There are usually no roads up the mountains, and it often rains nonstop. And you’ve got to deal with leeches and bugs.”

But the opportunity to work with the people of the Philippines to protect their natural resources is not to be missed. “You find extraordinary plants—like orchids that only live on one island, at the top of one mountain,” said Fritsch. “We can help protect these plants by documenting and studying them.”
BRIT PLANS TO CREATE A SEED BANK TO PROTECT THE RARE AND ENDANGERED PLANTS OF TEXAS.

Nearly 450 endangered, threatened, or rare plant species are native to Texas. But these plants are threatened by habitat destruction, the spread of invasive species, and changing climatic conditions.

BRIT is involved in multiple efforts to preserve rare plants, including an active membership in the Center for Plant Conservation (CPC), a national consortium of botanical gardens and research institutions committed to preventing plant extinction.

The next step for BRIT is the creation of a seed bank. Seed banks preserve carefully collected and frozen seeds for years, if not decades. These banks are powerful conservation tools. Seeds serve as source material for research and allow reintroduction of plants into the wild.

“A seed bank is ultimately an insurance policy against extinction,” said BRIT Conservation Research Botanist Kim Norton Taylor.

In the fall of 2018, BRIT set a goal to protect the 58 Texas species that live nowhere else in the world and that are at greatest risk of extinction. BRIT and the other Texas-based members of the CPC are committed to banking the seeds for these plants by 2020. To achieve this goal, BRIT must invest in a seed bank.

BRIT staff are currently developing plans for a future bank, creating a budget, and beginning fundraising to pay for equipment. BRIT has made a promise to protect the plants of Texas—a promise it intends to fulfill.
WEST TEXAS IN BLOOM

The Trans-Pecos region of far west Texas is one of the most ecologically diverse in the state. While its most rugged counties have a population density less than that of Alaska, what the Trans-Pecos lacks in people it more than makes up for in plants. More rare and native species can be found in this region than in any other part of Texas.

That’s why BRIT was proud to produce Flowering Plants of Trans-Pecos Texas and Adjacent Areas in 2018. The first complete treatment of its subject, the book comprehensively catalogs 2343 flowering plant species.

At nearly 1500 pages, the book represents more than 20 years of effort by its authors A. Michael Powell and Richard D. Worthington. It will become an essential tool for understanding and conserving the unique ecosystems of the Trans-Pecos.

“No ocean, no life,” Dr. Sylvia Earle told the United Nations in 2015. “No blue, no green. No ocean, no us.”

This key insight has driven Dr. Earle’s pioneering research into marine plant life as well as her tireless advocacy for ocean conservation. BRIT recognized her lifelong efforts with the 2018 International Award of Excellence in Conservation this October.

Dr. Earle has led more than 100 expeditions and logged more than 7000 hours underwater. The New Yorker and the New York Times have called her “Her Deepness,” and she was the first recipient of Time Magazine’s “Hero for the Planet.”

“The study of botany whether on land or in the ocean serves as the fundamental key to solving our planet’s environmental challenges,” said BRIT Executive Director Ed Schneider. “Dr. Earle’s dedication in keeping the ocean blue is truly remarkable.”