



Somaliland Biodiversity Foundation

ACTIVITY REPORT FOR 2019

Summary of activities

Museum

The herbarium of the Biodiversity Museum added 60 herbarium specimens in 2019. Records for the 60 specimens and 120 existing specimens were added to the online database. The number of specimens added is not high, but significant findings have been shared and new collaborations established. Two new species were formally published for the first time (*Aloe sanguinalis* and *Boswellia occulta*), an achievement that has drawn attention to the museum and the Foundation.

Recognition of the museum's commitment to scholarly research has led to requests for assistance by scientists from other countries. In the fall, Faisal Jama Gelle, the Collections Manager, facilitated a collecting trip for *Apocynaceae* by Drs. Peter Bruyns (University of Cape Town) and Pavel Hanáček (Mendel University of Brno, Czechia). Faisal's assistance including participating in the field work, was a valuable experience for him. The trip resulted in the addition of 34 specimens to the herbarium and 37 to the succulent garden. At Faisal's request, Bruyns prepared a write up about what was learned through their work in Somaliland for the next Newsletter. It provides valuable insights into Somaliland's flora.

The success of their trip led Bruyns to recommend working with SBF to a colleague at the American Museum of Natural History who has submitted a preliminary inquiry. Once more details have been obtained, the request will be submitted to the Ministry of the Environment and Rural Development for approval. Before agreeing to facilitate such requests, Barkworth always checks that the person concerned is a genuine research scientist affiliated with a reputable institution.

Scientists at the herbarium of the Royal Botanic Gardens Kew (Kew) assisted in identifying, verifying, or correcting the identification of many specimens, working either from duplicate specimens or images of living plants. Particularly significant results from this collaboration were the identification of plants being used to cure camel sores in northeast Somaliland as *Iphionopsis rotundifolia*, a relatively common species, not *Vernonia mogadoxensis*, a species now known to be confined to Somalia, and identification of a specimen in the succulent garden as *Aloe mcloughlinii*, a species not previously known to grow in Somaliland, rather than *Aloe parvidens*.

In the fall, Dr. Osman Gedow, chair of the Somali Wildlife and Natural History Association and the Somali Organic Agriculture Development Organization, visited the Museum and expressed interest in helping start a bird observation program. He assisted Ashe and Miskell by providing information for their book, *Birds of Somalia*, which was published in 2013 and regularly travels to Somaliland in connection with his

work. This is an opportunity for SBF to expand into a new area and offer another learning opportunity. On Nov. 3, he went with Faisal and Barkworth to Laas Geel where he identified 31 species in the area. These have been used to start of bird checklist for the area

(<https://openzoomuseum.org/checklists/checklist.php?cl=9&proj=1&dynclid=0>).

No attempt was made to build the insect collection in 2019.

Succulent garden

The succulent garden grew from 25 to 69 plants in 2019, thanks to contributions by Peter Bruyns and Pavel Hanáček, Ahmed Awale, and Tomáš Mazuch. Significant milestones in development of the plants are being recorded in a spreadsheet by Faisal. The expansion of the garden is pleasing but there are concerns about its protection and maintenance. It is unfortunately true that there is a market for succulent plants. The image below shows how the Hortus Botanicus, Leiden, addresses the problem for its outdoor succulent collection.



Laas Geel Project

In August, the Ministry of Trade, Industry, and Tourism (MTIT) approved a proposal from SBF to develop an additional perspective on the Laas Geel Petroglyph site. It is currently being promoted solely for its cultural significance. The SBF proposal was to enable it to be, in addition, a source of information about Somaliland's floristic heritage. The project, which also involves the Ministry Environment and Rural

Development, will see development of an illustrated, documented checklist for the fenced area, estimates of vegetation cover for both the fenced area and a surrounding buffer zone, establishment of permanent plots, and development of informative posters. Initial work has led to recognition of the importance of making good duplicate specimens for identification by experts. It is designed to produce results that will be of immediate value and to demonstrate how better understanding of an area's vegetation cover can assist in land management, education, and tourism. Funding for the project is coming from SBF. A semiannual report was filed with MTIT in January, 2020.

Frankincense Project

In the fall, doTerra, a company that sells medicinal and cosmetic products of plant-derived oils, awarded the Foundation \$27,000 to promote sustainable management of frankincense in Somaliland in response to a proposal from Dr. Anjanette DeCarlo. She had already established a frankincense nursery in Erigavo following the principles of permaculture and agroforestry and is using it to evaluate the effect of planting seedlings that are close relatives together, an approach that might facilitate endomycorrhizal establishment by building on kin recognition rather than aversion or competition in root growth. In addition, the farm is being used to grow food crops such as onions to promote food security and aid in development of good agricultural practices. The award to SBF is primarily for funding workshops (see below) on harvesting frankincense resin and developing posters and educational displays on tree growth, with an emphasis on what has been learned about growing and maintaining frankincense. DeCarlo

Personnel development

In 2019, the Foundation enrolled Faisal Jama Gelle, in an internship program at the East African Herbarium (EA) of National Museums Kenya. This is the largest museum in the region and contains many specimens from areas formerly included in the British Empire, including many specimens from Somaliland. He came back with a heightened understanding of the role of herbaria in promoting knowledge of a country's plant diversity and understanding of the procedures involved in operating a herbarium. Later in the year, he learned more about how to use OpenHerbarium to develop HARG, the herbarium of the University of Hargeisa.

Education

Ahmed Dhunkal of Erigavo offered 10 training sessions as part of the Frankincense project. These trainings and the posters developed for them will be shared with additional institutions in 2020. These sessions were co-sponsored by the Ministry of Environment and Rural Development. In addition, hundreds of *Boswellia* trees have been planted in a nursery with a greenhouse, fence, guard, etc. DeCarlo is now working to obtain funding for the water system. Engineering and feasibility studies have already been completed.

The museum did not offer any workshops in 2019 but work on the Laas Geel project has helped to identify some needs that had not previously been identified. In addition, it has helped focus efforts to expand the information available through OpenHerbarium.

In November, Faisal was asked to teach a course in plant taxonomy for the College of Agriculture in 2020. On hearing of the invitation, Barkworth emphasized to him the importance of ensuring the students learn through firsthand experience, not simply memorization. The museum already has enough hand lenses, forceps, dissecting needles, and single edge razor blades for a small class plus a projector,

including one that can project a dissection. After reviewing the outline provided by the college, Barkworth agreed to provide a compound microscope to the museum so students could benefit from more direct experience with some of the topics covered, such as palynology and plant anatomy. She also agreed to develop some online materials for the course. [The first offering of the course has been postponed until 2021 because of the need to provide online resources].

Fundraising

As reported above, Board member DeCarlo persuaded doTerra to donate \$27,000 for work on the frankincense project. The planned campaign to raise funds for purchase of dissecting microscopes for use in teaching was not initiated. Given the request that Faisal teach plant taxonomy next fall, this was most unfortunate. On the other hand, the request provides a strong reason for requesting such support of potential donors.

One, but only one, issue of the newsletter was published in 2019.

Looking ahead

The Somaliland Biodiversity Foundation has made solid progress in several areas. It, and the museum, have gained recognition among scholars interested in biodiversity of the Horn of Africa. These connections have expanded greatly through Faisal's contacts in Nairobi and Helen Pickering's interactions in the UK and at the Maansoor. Establishment of two focused projects will help focus work in 2020 and has highlighted training needs that will be used in designed workshops for MoERD staff in 2020. The invitation to Faisal to teach plant taxonomy has opened an opportunity to provide University of Hargeisa students with the understanding needed to start on the way to becoming contributors to knowledge of Somaliland's plant diversity and developing a better understanding of the interactions on which individual species and ecosystems depend.