

Can learning to care for plants help save them from extinction?

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How adopting cacti can lead to greater awareness. Photos by the author.

The National Autonomous University of Mexico (UNAM) Botanical Garden is found at the southern end of Mexico City in the leafy neighbourhood of Coyoacán. Set in some 30 acres, the Botanical Garden was founded in 1959. With a collection of over 1,600 Mexican plant species, the Garden also maintains collections of more than 300 of the 945 federally-listed plant species designated as endangered or at risk of extinction in Mexico. They have particularly strong collections of agaves, cacti, and members of the Crassulaceae family, and they contain 48% of *Agave*, 58% of cacti, and 100% of Crassulaceae that are threatened with extinction in Mexico. For cactus and succulent enthusiasts, the Garden is a valuable addition to the itinerary of any visit in Mexico City.

The reason for my visit to the Botanical Garden in February 2018 was to meet with Dr Abisai García Mendoza, a world-renowned expert on the genus *Agave*. I had recently spent a week with Dr Abisai (as he is often called by colleagues), along with more than 15 other leading experts on *Agave* conservation and botany in Querétaro, Mexico. These scientists were undertaking the difficult and complex task of assessing

the threatened status of *Agave* species for the International Union for the Conservation of Nature (IUCN) Red List, which is generally considered the ‘gold standard’ for the endangered status of species worldwide. This effort would represent the first comprehensive assessment of the threats that agaves face. I received an invitation to observe the week-long proceedings in order to understand better the IUCN Red List process as part of my research on the politics of cactus and succulent plant conservation.

It was a warm and sunny day, and so Dr Abisai generously offered to give me a tour of the Botanical Garden as we discussed the various challenges that Mexico faces in conserving its plant biodiversity. We spoke about the various threats that species face, from



Fig. 1 *Astrophytum caput-medusae* ready for adoption



Fig. 2 *Leuchtenbergia principis*



Fig. 3 *Cumarinia odorata*

agricultural expansion and illegal mining to illegal trade. The tour of the garden concluded with a visit to a small gift shop. Inside he showed me a separate section of plants for sale. These plant racks were mostly stocked with cacti, plus a few agaves and orchids mixed in, but amongst them I immediately recognised some of Mexico's rarer and more endangered species: a selection of *Turbinicarpus* and *Ariocarpus* species now considered endangered in habitat, as well as some highly desirable (and illegally traded) species, including *Mammillaria luethyi*, *M. theresae*, and *Astrophytum caput-medusae*.

I asked Dr Abisai if these plants were for sale, surprised to see them there, and at quite reasonable prices. He told me they were, but only as part of a special programme at the garden called 'The Centre for Adoption for Mexican Plants in Danger of Extinction' (*el Centro de Adopción de Plantas Mexicanas en Peligro de Extinción*). He explained that the idea was to help foster greater knowledge, particularly among children, about Mexican biodiversity, but also to teach plant 'adoptees' to treat these endangered species as living beings that require attention and care. I learned that it was both a fundraising scheme for the Botanical Garden, as well as an educational effort. I then asked the shop attendant if it would be possible for me to adopt a plant through the scheme. "Are you Mexican?" she asked. "No, American," I replied. She explained that as all the adoptable plants are listed on

the federal endangered species list (la Norma Oficial Mexicana NOM-059), they were not available for international sale or transport (and also in accordance with CITES rules and regulations, which would require export permits).

Curious to know more about the programme, I later found the Centre for Adoption's website. According to that, the plant adoption programme is stated as being "a personal commitment to care for and protect specimens of plants in danger of extinction, which have been propagated legally in the Botanical Garden and offered for adoption to the public. In this way, adoptive parents become actors for biological conservation." To date, the programme has had well over 10,000 plants adopted by as many individuals. When a plant is adopted, the plant 'parent' is sent home with a certificate of adoption and care instructions specific to the species. Their name and phone number is also registered at the garden so that staff can check in with the adopted parents in order to see how the adopted plant is doing in its new home. During my visit, I was able to tour the Botanical Garden's set of large greenhouses where these 'adoptable plants' are propagated and raised, some from seed or cuttings, while others are propagated using tissue culture methods.

As I am a researcher studying the politics of conservation and trade (legal and otherwise) in cactus and succulent plants, the idea of raising awareness about endangered plants through 'adopting' cultivated specimens intrigued me. I was struck by the connections the programme weaves together between conserving species in habitat and 'cultivating' personal care for individual artificially propagated plants at home. But what, exactly, *are* these connections? And of particular interest to me, how meaningful might these connections be for forging stronger links between the care cactus and succulent collectors give to plants in greenhouses, with thinking about care for species threatened in their native habitats?

Prior to my arrival at the University of Sheffield, I had studied and completed my PhD on human – wildlife conflicts and the politics of conserving endangered megafauna (ie big animals) in southern India such as tigers, Asian elephants, and leopards. While the subject of conservation politics is my area of expertise, cacti and succulents most certainly are not, or at least were not when I began this project in 2017. Back home in Baltimore, Maryland, I had maintained a few cactus and succulent plants over the years (and I am pleased to say several of them remain alive to this day!).

However, when I first arrived in the UK, I knew next to nothing about meaningfully *caring* for cacti and succulent plants. It struck me as odd that I should be studying the politics of plant conservation without a better sense of what it means, on an individual level, to maintain and grow these incredible species. With this in mind, some quick internet searching brought me to my first meeting of the Sheffield Branch of BCSS in the autumn of 2017, where I was warmly welcomed into the world of raising cactus and succulent plants by a host of expert growers. So I set out to confront my own personal ‘plant blindness’ despite identifying myself as a researcher studying plants!

In 1998, two educational researchers coined the phrase ‘plant blindness’ to refer to what they considered as “the misguided anthropocentric ranking of plants as inferior to animals” (Wandersee & Schussler, 1999). Some twenty years on, the notion of plant blindness has become increasingly accepted as a pervasive symptom of Western urbanised societies, with articles being featured on the subject in prominent newspapers such as *The Guardian* (Blackhall-Miles, 2015) as well as on the BBC (Ro, 2019). In a review paper that I recently co-authored with researchers from Kew Botanical Gardens, IUCN, Lancaster University, University College London and Oxford University, we assessed how plant blindness also influences how species affected by illegal trade are prioritised by the conservation community, with illegally traded plants (apart from timber species) receiving scant research, funding, or policy attention compared to animals (Margulies et al, 2019). Plant blindness therefore does not only reflect a societal problem in which plants are ignored as part of the background of a human and animal world, but is a pervasive issue even among the conservation and wildlife protection community.

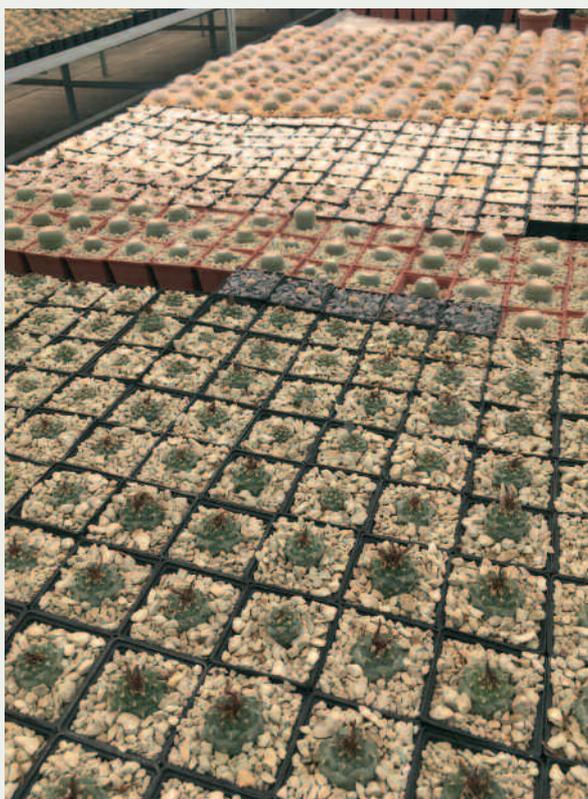
Back at the Botanical Garden and perusing the selection of adoptable cacti, I thought of all of the new cactus and succulent plants that had come into my care as a result of joining the BCSS and the Sheffield Branch. Although still brand new to the hobby, I had to admit my role as researcher of plant trade had taken a decidedly ‘participatory’ turn, as there were easily 30 small cacti back in Sheffield that my colleagues had kindly offered to care for (as best they could) in my absence. In relation to my own research on cactus and succulent conservation and trade, I was slowly learning to appreciate that my early forays into cactus care were revealing new avenues of research inquiry other than those I might have recognised as being valuable to pursue had I remained at a distance from the plants themselves.



Fig. 4 *Mammillaria pectinifera*

Learning to care for plants, even without formal ‘adoption’ papers, has taught me to think in plant-time, to consider the multiple ways in which plants reproduce and propagate, and what this means for their conservation and trade. Beginning to learn the various (and variously debated) histories of particular species’ taxonomies and how they continue to evolve also opened me up to the ways in which plants evade and resist human classificatory efforts to put them neatly into species boxes that do not necessarily align with their plasticity and hybridity. These taxonomic issues can also have concrete policy effects in terms of the endangerment status of a species, which can affect its ability to be traded legally or not. All this learning, in one way or another, has informed how I enquire into the politics of protecting plants, even if these connections are not always immediately obvious. In summary, learning to care for plants has become central to my research practice as a social scientist.

The Plant Adoption Programme at the UNAM Botanical Garden speaks to an important missing link for many in overcoming personal plant blindness, and how doing so can connect to protecting species in their countries of origin and native habitats. For those of us raised in societies in which plants are treated as inferior or less ‘alive’ than animals, learning plant care is a matter of time, attention, and patience, something that has become apparent to me in joining the BCSS. But I fear that for many, learning to care for a plant in



Figs. 5 & 6 (above and left) Inside the adoptable plants propagation greenhouses

Programme attempts to address, is to foster ways of thinking about extending this kind of species care to those plants not within our individual possession, but that live out in the world amidst complex ecosystems with a multitude of other beings, vegetal or otherwise.

The UNAM Botanical Garden is open Monday to Friday, 9:00-17:30, Saturdays and Sundays 9:00-15:00. Address: Jardín Botánico del IBUNAM, Tercer Circuito exterior, S/N Ciudad Universitaria Coyoacán, México, D.F, C.P. 04510. The Center for Adoption for Mexican Plants in Danger of Extinction can be found on Twitter at @Adoptaplanta and online at <http://www.ib.unam.mx/jardin/adoptcion/>

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a greenhouse is the end of their engagement with thinking about caring for other than human species. The next step, which I think the Plant Adoption