

RHS Interchange Fellowship
Eva Rose Steinberg
2017-2018 Midterm Report

Introduction

September 24-October 28: RHS Gardens Wisley, Surrey

October 29-December 2: Kew Millennium Seed Bank Project, Wakehurst Place

December 2-December 20: RHS Gardens Wisley, Surrey

January 7-February 3: The Eden Project, Cornwall

Summary

Introduction

When describing what I planned to focus on during my year in the UK, Rowena Wilson, the RHS bursary coordinator, said it best: “Eva is interested in all things seeds.” I have to admit, I wasn’t entirely sure what form my “seedy” adventure would entail; prior to coming to the UK the majority of my horticultural engagement was through working on small farms and for heirloom seed organizations. I had never encountered anything like a British botanical garden before, and was nervous to see if I would fit in at some of the world’s biggest and best horticultural institutions.

I began my fellowship at RHS Wisley, helping with the Seed department. Next, I headed east to Wakehurst Place, where I worked at the Kew Millennium Seed Bank. After my time in the bank, I returned to Wisley for a brief stint with the Edibles team and in the Herbarium. Finally, I headed to Cornwall to work at the Eden Project in an attempt to escape the winter chill. In my time here, I have worked with plants from all over the world, sweat in rainforests and shivered in freezers, and learned how to tell stories with plants. Prior to departing for the UK, I wrote that my goals for this year were to:

1. Document what I learn at each garden, from the material and day-to-day tasks to new plant information and the more general social attitudes towards gardening and horticulture in the UK.
2. Explore seeds as embodiments of culture and biology, and consider how this changes in a curated context, as well as taking into account the historical and symbolic aspects of these seeds and plants in British culture.
3. Attempt to situate American agriculture in a broader global agricultural scheme.
4. Meet some sheep!

Four months in, I can successfully say that I have accomplished all of these—and so so much more!





RHS Gardens Wisley, Surrey

I began late last fall with a placement at Wisley, the largest RHS Garden, working with their seed department. The purpose of the department is to maintain the RHS Member Seed Scheme, program through which members can buy up to 15 packets of seeds that are hand collected, cleaned, and packaged from RHS gardens. I joined the team for the last few weeks of collecting--several times each week we ventured out into the garden, "passion wagon" filled with collection bags in tow, and sought out any seed that was ready for harvesting. In retrospect, this was the perfect way to learn about the different parts of Wisley. I was encouraged to explore each section of the garden, and was able to become familiar with plants from all parts of the garden.

After collecting the seeds, we brought them back to the seed department room for processing, drying, and cleaning. We started by cutting off the stems and leaves of the plants we had gathered, and laying out the seeds in cardboard boxes (some of which are 100 years old!) to dry. Once dried, we cleaned the seeds through a series of steps, usually including sieving, aspirating, shaking, and sometimes (painstakingly) sorting the seeds from debris using forceps. By the end of the process, the goal was to have enough seed for at least 50 packets for the upcoming years scheme--the entire collecting/cleaning process is always done a year before the actual list is released to ensure accurate lists.

While I was with the seed department, we participated in two festivals at Wisley--Seeds on Show as a part of the Festival of Trees and Taste of Autumn. For Seeds on Show we set up tables to sell seeds from last year's list for non-members to purchase, as well as a display of interesting and exotic looking seeds and seed pods that visitors could touch in order to get a sense of the stunning diversity of seeds (and the plants they become). The children were especially enamored of these seeds, and were so enthusiastic to plant the pot marigold (calendula) seed that we gave them. It was a perfect way to interface with the public and pique their interest in seeds--every time a visitor said "Wow!" or "I had no idea that was a seed/plant!" Lucie, Heather and I shared a smile. Their excitement really encapsulated what I see as the purpose of the RHS Seed Scheme—to inspire people to grow plants at home and connect to their gardens in a new way. So much of our lives is centered around being as efficient as possible and seeking instant gratification, and growing from seed is a way to be present for the entire process. By encouraging people to start plants from seed, we are also encouraging them to engage with the natural world in a new and rewarding way.



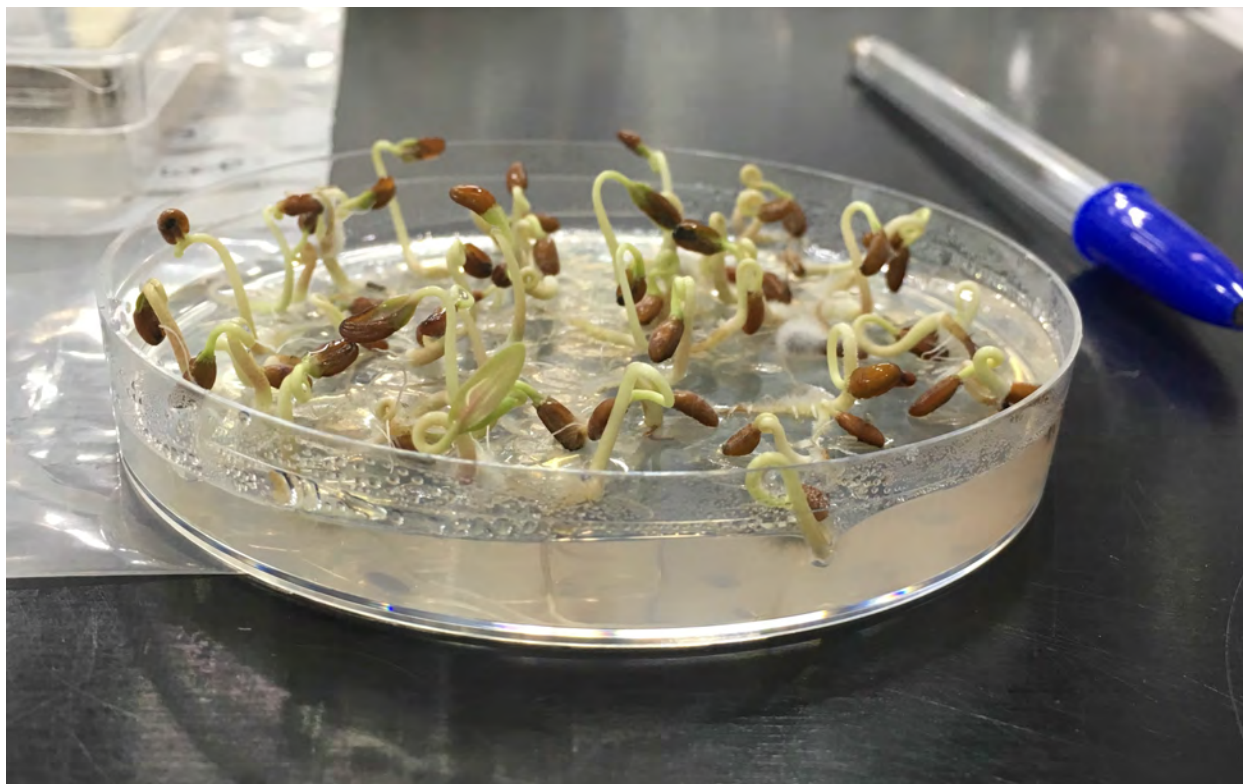
Besides being exposed to all parts and plants of Wisley, the other highlight of working with the seed team was the people--the team consists of two staff members, Heather and Lucie, and a slew of volunteers, some of whom have been volunteering at Wisley for longer than I've been alive! Everyone was so quick to take me under their collective wing, and I cannot begin to express how much of a difference their warmth and kindness made as I settled into a new country. One volunteer who had lived in Reno, Nevada for some time and I got along particularly well, and after she learned about my love of crafts, knitting, and sewing, she and I went on two day trips to local craft festivals, Mottisfont and Winchester Mill National Trust Properties, the Watt's cemetery and cathedral, Waverly Abbey, and to see some incredible vistas overlooking the South Downs.

Towards the end of my time at Wisley, I had the privilege of attending the RHS Autumn Garden Show and Lindley Library in London. It was my first garden show and the displays were incredible—I was especially drawn to the flower mandalas scattered around St. Vincent Square and

the huge indoor foraging exhibit in the middle of Lindley Hall. On our way we stopped at Chelsea Physic Garden (where I'll be working in just a few short months!) and I was absolutely blown away as soon as we stepped into the walls of the garden. Their special exhibition last summer was about different plant based textiles, and Rowena and I were amazed by all the swatches of fabric fluttering in the wind, from the usual cotton and linen to the more exotic banana and tobacco fabrics.

For the second day of the show, I attended two of the RHS Plant Committee meetings—bulbs and herbaceous. I was blown away by the sheer amount of knowledge in the meeting room as people from all over the country (and in the case of bulbs, the world) gathered to discuss which varieties should be given various RHS awards and presented new cultivars. It was incredible to get a glimpse of the intersections of plant breeding, gardening, and landscape design all at once. During both meetings committee members brought up efforts that the RHS is making to stay relevant as garden culture shifts. Everyone agreed that it is becoming more and more important to make sure that the RHS and its events are accessible to the broader public in order to increase people's interest in horticulture and to avoid alienating them by focusing too much on awards. It was heartening to know that these horticultural experts are concerned with making sure that their society continues to appeal to everyone.





Kew Millennium Seed Bank Project, Wakehurst Place

After five weeks at Wisley, I moved to the next county over to the Kew Millennium Seed Bank Partnership at Wakehurst Place. The Millennium Seed Bank (MSB) was one of the places that drew me to this fellowship in the first place--after reading about the incredible biodiversity and the goal to collect 25% of the world's species by 2020 I knew that I had to figure out a way to work there! I spent the first three weeks working with the seed collections team, who are responsible for processing all incoming seeds from plant collection expeditions all over the world--in my time working with them I processed seeds from every continent (not including Antarctica).

Processing starts when the MSB receive a box of seeds from the collectors. The seeds then need to be cleaned and dried before they are evaluated for quality and quantity. Once ready, the seeds are x-rayed to test for emptiness, infestation, and the number of seeds per fruit, weighed, counted, and then a sample is set aside for germination testing. This was my favorite part of the process--we set up seeds on agar plates and waited to see if and how they sprouted. The purpose of germination testing is partially to test the viability of seeds (once banked, seeds are retested every five or ten years) and partially to test which conditions are the most conducive to germination. After the tests are set up, the plates and seeds go into growth chambers at different temperatures and are checked every week to see how many seeds have sprouted or if any are mouldy.



The seeds that aren't used in germination testing are packaged in glass vials and sent into the bank--a series of cold rooms filled with aisles and aisles of seeds. Each cold room is kept at a chilly -20 degrees Celsius (but it feels like -30 degrees with wind chill!). These temperatures are so extreme that the scientists are only allowed to be inside for 20 minutes per day (in two ten-minute shifts) and have to wear giant coats, boots, and gloves when working inside.

For the last two weeks of my time at the MSB, I was able to participate in a training course with scientists from Brazil, Pakistan, and Italy and help compile a guide for international plant collectors. We learned about the Crop Wild Relative conservation project and about the theories behind the protocols for seed preservation at MSB. After working with these procedures for three weeks, it was fascinating to learn the science behind seed longevity and viability, especially in the context of a project that has the potential to save our food crop biodiversity. The goal of the Crop Wild Relative Project is to maintain the seeds of plants that are related to common food crops, such as legumes, cereals, and bananas, in order to preserve the genes behind traits that could help crop breeders develop varieties more able to withstand our changing environment.

While at Wakehurst I was sure to take advantage of the proximity to London and to the coast with weekend trips to Ireland and Belgium with my brother (who spent the fall studying in Dublin) and day trips to Hastings, Brighton, and London with some of the other students working and living at the Seed Bank. While in London I was able to visit the Garden Museum, which I am already planning on revisiting when I'm in London in June/July. I wasn't able to spend as much time there as I would have liked, but was able to glean a bit more information about the history of gardening in the UK--especially the role that women have played in British horticulture.





RHS Gardens Wisley, Surrey

Before the Christmas holidays, I returned to Wisley for a brief two-week “reunion tour.” During the first week I joined the first year Horticultural Diploma students in a four day Fruit Tree Pruning Master Class. We spent three days pruning apple trees, then a day working with small fleshy fruits such as currants, raspberries, and grapes, culminating in an afternoon pruning grape vines in the orchard, which just might be my calling. The Edibles team were incredibly helpful and knowledgeable about not just the trees, but also the histories of the different cultivars and their uses. I knew that apples were commonly grown in the UK, but had no idea of the extent to which they have been cultivated and bred here. Despite the cold and blustery weather, I really enjoyed being able to work with the trees and developing an eye for which branches should be trimmed and which should be left to grow another year—it made me want to grow fruit trees at home!

During my second week I worked in Wisley’s herbarium, which contains more than 83,000 plant vouchers. Within the first hour of being there, I was shown the oldest sample (a sprig of

lavender from 1731) and a pressed specimen of a potato collected by Darwin on his explorations, both of which are absolutely incredible--I still can't believe that I held a plant that Darwin once held! Throughout the rest of the week I was able to work in many aspects of processing specimens, including collecting camellias from the garden and pressing them, digitizing and curating the existing collections, and (my favorite) mounting pressed specimens to be added to the herbarium's collections.



For my last day at Wisley, Rowena and I went to Painshill Gardens, an 18th century landscape garden just down the road from Wisley. Painshill was originally established by Charles Hamilton, who sought to create “living paintings” with his landscaping. After Hamilton’s forty years living at Painshill the garden was neglected and became overgrown and the facades around the garden fell into disrepair. However, the garden was “rediscovered” in the 1980’s and restored to its former glory. We were lucky enough to be shown around the gardens by the head gardener, who was able to articulate the garden in a way that almost transported you back to the 18th century, when Hamilton would show visitors around the sweeping landscapes, stumbling into pockets of gardens that almost seem more like rooms in a museum, each with a collection of plants from his travels around the world. Scattered throughout the property are follies, which were to add to the exotic nature of the garden. My favorite of these was the hermit’s hut, which at one point housed a hermit that Hamilton paid under a seven year contract to live in a tiny hut in the woods of the estate and have no contact with the outside world. This didn’t pan out, as the hermit was found three weeks later in the local pub and promptly expelled from his position.

Perhaps the most exciting part about Painshill Gardens is their John Bartram collection. Bartram was an American botanical explorer and contemporary of Hamilton's, and is known for having sent thousands of seeds and specimens from the US to Europe. I had known about Bartram from his botanical expeditions through the Southern US where I'm from, and was excited to hear about his influence in the UK--it was almost like seeing an old friend across the Atlantic. One of the most poignant parts of the Bartram-Hamilton-Painshill connection is that they continued to share seeds and plants throughout the late 18th century, even during the Revolutionary War. It seems so poetic and appropriate for my year in the UK that seeds and plants were able to bridge not just the ocean, but also two warring countries.





The Eden Project, Cornwall

In the new year, I headed west to Cornwall, for a month's placement at the Eden Project. I had been warned that Cornwall would be very rainy this time of year, but also that it wouldn't be as freezing as the rest of the UK. Despite all the mizzle (misty drizzle, my new favorite word), there hasn't been a dull moment between working in the various departments Eden and exploring this corner of England. The Eden Project is an old mine (historically, mining was Cornwall's main industry) that was converted into a garden containing two biodomes surrounded by themed gardens. Although the domes are definitely the main attraction at Eden, some of my favorite spots were tucked away in the mossy slopes of the outdoor gardens, which almost have a mythical feel to them.

At Eden, I split my time between the gardening team, the science and interpretations team, and the narration team. Because winter is a bit of an odd time for gardening I wasn't able to spend as much time as I would have liked working in the gardens, but I was able to spend a few days each with the Mediterranean and Rainforest teams. With the Mediterranean team I was working in the Afromontane region, which replicated pockets of woods in South Africa that exist in valleys and crevasses formed by rivers and streams. In the wild these forests are "pruned" by infrequent natural phenomena such as storms and fires, so to replicate these processes the garden team only prunes the Afromontane once per year or every other year. Consequently, going into the garden for pruning

was also a process of discovering which plants had grown where in the last two years, and trying to predict what growth patterns might look like in the next year or two. With the rainforest team, I spent most of the day working in the agroforestry region of the dome, working with crop plants that are common in Western Africa but completely new to me. I learned that there is a three-tiered approach to agriculture there, with essential crops such as legumes, sorghum, and maize (tier one), less essential crops such as fruits and non-staple vegetables (tier two), and supplementary plants such as spices or herbs (tier three). This approach amazes me—I love that you can tell so much about people from looking at their gardens!



I spent the majority of my Eden placement working with the science team, researching different gardens for signage and historical background. For each garden planted at Eden, a slew of work goes into researching that region's native environment and the ethnobotanical significance of the plants that grow there. While here, I've been helping conduct research for future projects, one of which is about prairies. The prairie at Eden was built in 2010 by James Hitchmough, a landscape ecologist at Sheffield University, and draws attention to North America's rapidly declining Midwestern prairies (a place near and dear to my heart after living in Iowa for a summer!). I'm helping write the signs that will be placed in the prairie region to explain to the public what the prairies are, how they've disappeared, how Eden's prairie was built, and sharing some stories about groups in the US trying to save the prairies.

The second project I've been working on is for a Korean Demilitarized Zone (DMZ) garden that is in the early planning stages. The DMZ is a stretch of land between North and South Korea

that is unoccupied due to post-war agreements and the mines buried throughout the land. Because nobody has been in the DMZ for 60 or so years, wildlife that would otherwise be unable to survive due to development and habitat loss have been able to flourish. However, because no one has ventured into the DMZ, it's unclear exactly which flora live there. My project was to read papers about native and endemic Korean plants, as well as to find general background knowledge about the region and its climate. There are hopes to turn the DMZ into a wildlife sanctuary and "Peace Park," which in some ways is further proof of the power of plants to bring people together.

Bringing people and plants together is the theme of the third team I've been working with at Eden--the narration and storytelling team. The overall goal of the Eden Project is to educate the public about how plants that seem so foreign have a presence in our everyday lives, from bananas to rubber to coffee. The role of the narration team is to engage with the public and portray this side of the plants, as well as put the gardens in a greater context of restoration and successful human-environmental interactions. As a part of the team I formulated an "engagement," a sort of mini-story that the public stumbles on as they tour the garden. Something I've had to learn in this role is to not force information on the public, but instead to create a scene that invites the public in to engage with you before starting a conversation with them (apparently approaching people to talk to them about plants is frowned upon in British culture...). For my piece, I sit in the rainforest looking at dirt in a teacup, which is reminiscent of an experiment Darwin performed by scooping soil into a teacup and allowing the seeds stored in that soil to germinate. Over the course of twelve weeks, he found 527 sprouts in just 6 tablespoons of soil. These seeds were in the "soil seed bank," a sort of underground reservoir where seeds sit until they encounter conditions conducive to germination and growth. The soil seed bank plays a crucial role in regrowth, as well as represents an entire world of seeds that we don't think about in our day to day lives.



Overall, I'm really coming to appreciate The Eden Project's approach to interacting with the public and the way that storytelling and developing plantings that aim to inspire visitors is central to the garden's mission. I'm definitely feeling inspired to continue to think about new ways to encourage people to interact more with the plants around them, whether by gardening, learning more about endangered environments, or visiting more gardens.

During my weekends in Cornwall, I was lucky enough to get in touch with Charlie Ive, who was the GCA Fellow at Longwood Gardens two years ago and lived in Cornwall last year working at the Lost Gardens of Heligan. Over the course of two weekends he showed me around Cornwall, including Trebah Gardens, Plymouth (and the rock from which the Pilgrims set off to America!), parts of the Coastal Path along Fowey to the Gribben and Polruan to Boddinick, and (my favorite) to Bodmin Moor and the Minions, Cheesewring, and Hurlers. I was especially struck by the barren yet beautiful landscapes of the moors--I had never seen anywhere so mossy and cloud-like, and the towers of rocks added to the mystical charm. Best of all, on our way back to the car we ran into some sheep grazing among the rocks!





Summary

I approached this fellowship with the intention of studying the role of seeds in UK botanical gardens and how people of the UK engage with their seeds and gardens, both vague themes with no obvious manifestation. Halfway through the experience, I can confidently say that these are still as vague of statements as they were when I began. However, it has become clearer to me just how significant of a role gardens, and more broadly plants, have played in British history and culture. In university, some of my favorite professors taught that in order to study a culture one couldn't expect to go in and learn everything about a place and its people then leave with a nice tidy package of the essence of that culture; cultures are messy, and to study a place is to tease out and expose its complexities. I have kept this in mind throughout my placements over the last four months, and have learned more than I ever imagined about the role gardening has played in British culture and how, in many ways, gardens and the shifting attitudes surrounding them mirror how British society has changed, from colonialism to plant explorers, walled gardens to the English landscape garden.

A larger theme that I've noticed throughout my time in UK is the different approaches each garden has to connect people with plants. The RHS Wisley Seed Scheme's goal is to inspire people to grow by giving them access to the same seeds that gardeners at Wisley use for the displays there. At both of the RHS plant committee meetings there were discussions of finding a balance between maintaining their historical level of prestige while also being sure to reach out to people that don't have horticultural backgrounds. While the MSB had a more scientific approach than I initially anticipated, there was still a large emphasis on educating people about seeds and working with people from all over the world to collect seeds for the bank. The Wisley herbarium was in the

process of digitizing their entire collection (a multi-year process!) so that it could be accessed online. The Eden Project's entire mission is focused around emphasizing human connections to plants through creative storytelling methods that are interesting to everyone, regardless of how much they know about plants.

As I look ahead to the next six months of garden hopping, I'm keen to continue to explore themes of humans connecting with and through plants, as well as learning more about the social contexts of gardens, and placing them in relationship with each other and with British history. I have some inklings of what my upcoming placements at Tresco Abbey Gardens, Cambridge Botanic, RBG Edinburgh, and Chelsea Physic Garden will entail, but if I've learned anything so far it's to keep an open mind and to jump at every opportunity, because in the UK absolutely everything is related to gardening!

