

Project Report: Work Experience with the Horticulture Team at the Knepp Estate Walled Garden



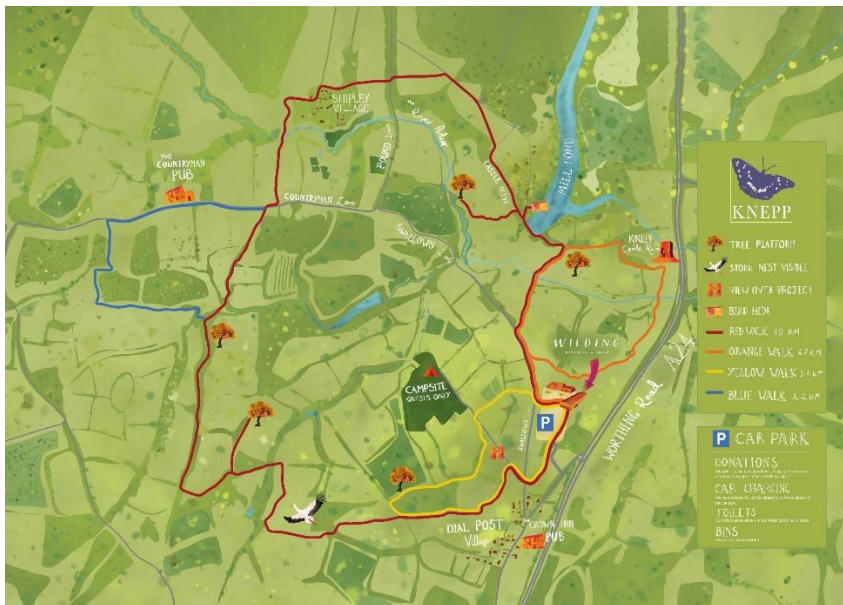
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Introduction

For my Merlin Bursary, I arranged work experience for four days with the Horticulture Team at the walled garden at Knepp Estate. I'm particularly interested in wildlife and ecologically friendly gardening practices, so I wanted to see firsthand how the rewilding ethos was applied to a formal garden. I was also eager to visit the rewilded estate at Knepp to observe the transformation of the previously agricultural land.

Knepp Estate – Background



Map of Knepp Estate

Knepp Estate had been intensively farmed agricultural land for generations. However, in 2000, after failing to remain profitable due to the unproductive clay soil, Charlie Burrell and Isabella Tree decided to sell their farm equipment and dairy herds and begin the process of rewilding the land. Inspired by the Dutch rewilding experiment Oostervaardersplassen and with grants from the Countryside Stewardship fund, they started making changes to the area. They first sowed wildflower meadows in the old deer park to begin increasing biodiversity. Later on with another grant, they installed deer fences around the estate's perimeter, which allowed the introduction of large herbivores such as Tamworth pigs, Longhorn cows, Exmoor ponies, Red and Fallow deer, and European beavers. Each animal species uniquely impacts the vegetation in the habitat, creating a complex mosaic of ecosystems of wild shrubland, forests, and wetlands. These interconnected ecosystems have significantly increased the biodiversity of Knepp, with many rare insect, bird, and small mammal species returning, including endangered migratory species in the UK, such as the Turtle Dove, Nightingales, and the Purple Emperor Butterfly. The success of this project has been incredible and has changed perceptions about how we restore wild landscapes, leading to similar projects across the UK.

The Walled Garden

In 2019, the formal walled garden, which included manicured lawns and a formal vegetable garden, underwent a redesign to embrace the rewilding philosophy of the estate. Garden designer Tom Stuart-Smith, along with input from experts James Hitchmough, Jekka McVicar, and Mick Crawley, contributed to the redesign. The walled garden was transformed to include a mosaic of ecosystems to promote biodiversity. Changes to the topography of the old croquet lawn involved adding mounds of rubble, creating varying biomes to support different plant communities, including drought-tolerant species and those capable of adapting to fluctuating dry and wet conditions. The kitchen garden was also redesigned to establish a complex network of edible and useful plants while promoting soil health.



Aerial shot of the walled garden

Work Diary: Working with the team across the Knepp Estate

The Grazing Index

The team has created a grazing index, which is a comprehensive list of all the plants in the gardens, including both planted and naturally occurring ones. The plants are evaluated based on their performance in five different categories:

1. Biodiversity: How many different types of wildlife rely on the plant through nectar/pollen, seeds, fruit, etc.?
2. Usefulness to the garden/gardeners: For example, plants with deep roots can help break up heavy clay soils, or plants may have medicinal or practical uses.
3. Self-seeding/spreading ability: How easily the plant spreads and whether it can be controlled.
4. Ease of removal once established
5. Aesthetic qualities: Whether the plant looks visually appealing and fits well in its position.

This scoring system informs the gardeners how to ‘selectively graze’ each plant to remove or deadhead before it sets seed. Instead of traditional weeding methods, the plants are ripped out to deadhead or chopped back to ground level to leave the roots intact. This method aims to mimic the natural grazing and disruption caused by herbivores in the rewilded landscape.



Chicory growing through the table and the famous Yew goat topiary

Day one

In the morning, I met the garden team, including Head Gardener Charlie Harpur and gardeners Moy, Suzi, and Josh. They gave me a tour around the walled garden, explaining the different areas and their long-term goals. They also mentioned that much of what they are doing is experimental, as the garden is so young. Therefore, they are trying out different things to see how well they work.



I spent the day working on the area around the pool. I was shown how to selectively graze specific plants based on the Grazing Index. For example, I removed plants like *Cephalaria gigantea* because they overcrowd other plants, and fleabane because they had little ecological

value. I also trimmed back Docks to the ground as the taproots help break up the clay in the soil. The team is experimenting with leaving self-seeded tree saplings in place to benefit the soil, they might move them later or 'goat' prune them to keep them as small shrubs. In the afternoon, I worked in the kitchen garden, which is designed as a diverse polyculture. I cleared a section for planting okra; I planted them close together to help conserve water, as they need a lot of irrigation.



Area to be cleared to plant Okra

Newly planted Okra

Day 2

I spent time clearing the centre of the "Dirty Paths," which are designed to be planted with drought-tolerant herbs like lavender, oregano, and marjoram, which can also spread in the compacted gravel. Since there is not enough foot traffic to naturally compact the centre of the paths, it needs to be cleared regularly. I also thinned out congested areas along the path to highlight the intended planting combinations.



Dirty paths planted with Lavender, Santolina and Ox-eye Daisies

In the afternoon, I pruned some self-seeded oak saplings at the front of the house using the "Goat" pruning method, which involves snipping into the soft new growth haphazardly to mimic how a herbivore grazer like a goat would clip back the trees in the wild. While this method is a

bit controversial, it makes sense in the context of how the shrub trees look in the rewilded areas and helps prevent the oak saplings from growing too big too quickly.



Oak saplings in the wildflower meadow. Goat pruned to keep as small shrubs.

Day 3

In the morning, I grazed ox-eye daisy seed heads to prevent them from self-seeding too much, as the foliage suppresses other plants from growing.

The crops in one of the main vegetable beds have struggled to grow. Upon consulting the original designs, it was revealed that the new bed had been placed on top of an old path, causing compaction and drainage issues. To address this, we raked the topsoil to the side, revealing a layer of solid clay at the bottom. We used a mattock to break up the clay, then added the topsoil back mixed with leaf mould for extra nutrients. After that, I planted various cultivars of Brassicas and Currant bushes into the new bed.



Vegetable bed before. Kale being positioned out before planting



Vegetable bed being raked over. Photo of the kitchen garden.

Day 4

In the morning, I worked in the Swallows area, which is the newly designed section around the Shop and Restaurant. It was designed by Head Gardener Charlie, as the rewilded landscape surrounds this area, it is designed as a cultivated version of this, featuring lots of native trees and wildflower meadows. I helped to clear the grass and weeds around the base of the newly planted trees and then mulched around the bases with bark mulch. In the afternoon, I thinned out apples in the orchard, twisting off fruit from the congested branches, and left the fruit on the ground for wildlife. The orchard was in a wildlife meadow to help increase the biodiversity and encourage pollinators.



Apple thinking in the orchard surrounded by wildflower meadow

After that, I had a tour of the Market Garden, which supplies the restaurant and shop with produce. All the food is grown organically and aims to improve the soil microbiome as much as possible. This is achieved through no-dig methods, always keeping roots in the soil, and utilising cover crops to prevent soil erosion. One section of the market garden was previously part of the rewilding area, while the other was a horse pasture. The crops in the rewilded area are much healthier than those in the horse pasture, demonstrating the significant recovery of soil life in the rewilded areas.



Market Garden polytunnel and herb garden

Identifying and Recording Wildlife Safari with Kate Bradbury

On my second day, I attended a safari with wildlife gardener Kate Bradbury. During the safari, she showed us how to record wildlife found in the garden. In her presentation, she discussed how identifying and recording the wildlife found in the garden is the next step in developing a garden for wildlife. By identifying the wildlife in your garden, it helps establish a biodiversity baseline to work from. This information can help determine what habitats, shelters, food, and water sources to add to encourage even more varied wildlife. On a larger scale, recording what is in your garden is vital because it helps inform scientists about the location of wildlife around the country, tracking population fluctuations and movements of different species. This information can influence local conservation initiatives as well as national policies and projects.

iNaturalist is a great wildlife recording app that's perfect for beginners. It has a built-in community that can help you identify and verify the wildlife you've found. You can even create a project area for your own garden. If you're just starting out, insects like ladybirds and bumblebees are easier to identify since there aren't too many species.



Glow worm larvae and Cinnabar Moth caterpillars

We then went into the walled garden and caught different insects, with Kate helping us identify them. We found a couple of different species of bumblebees, a couple of butterfly species, and a glow worm larva. However, there was a definite lack of flying insects in the garden. Kate and the other Knepp ecologists are concerned about the low numbers of flying insects this year. It's likely caused by the amount of rain we've had, which has killed many soil-dwelling organisms or delayed their emergence.



Wild beehive and a toad that was found under a log

The Rewilded landscape



Rewilded landscape

In the evenings, I was able to explore the rewilded landscape and witness the transformation from former farmland to the wild shrubland it is today. The area outside the campsite in the Southern block used to be arable farmland, and it has rewilded more quickly than the areas used for pasture. This is because the soil was bare once the last crops were cleared, allowing vegetation to naturalize more rapidly.

During my walks, I observed various herbivores, such as Tamworth pigs and their piglets, storks, and red and fallow deer. I also saw purple emperor butterflies fluttering around the oak trees.



The former hedgerows have grown wild, expanding into full-size trees with brambles and wild roses growing freely among them. The roaming herbivores keep the grassland relatively short, but there are numerous wildflowers like clover, self-heal, mallows, and trefoil scattered everywhere.



Brambles form protective barriers around young trees, shielding them from deer, which can damage the bark and kill the tree. Once the trees mature, their canopy shades out many of the brambles, clearing the space underneath.



Sapling protected by brambles

Dusk Safari tour

On Thursday evening, I went on a dusk safari tour with one of the guides around the southern block. The guide was extremely knowledgeable, pointing out and explaining the different species and locations we saw in the southern block and how it has developed and changed over the last twenty years. We saw various animals, including Tamworth pigs, Longhorn cows, deer, turtle doves, storks, pipistrelle bats, and mason bees. It was inspiring to see so much British wildlife at once.



A Turtle Dove and a Stork



Exmoor ponies, Tamworth piglets and Longhorn Cows

The guide pointed out areas where safari vehicles and walkers had left the soil bare, which created the perfect habitat for ground nesting bees to make their nests.



Mason Bee nests on bare soil

During the tour, we saw many storks' nests with families in them. The guide explained that the first storks reintroduced were rescues from Poland that couldn't fly due to injuries and are kept in an open enclosure. The second group of storks were rehabilitated and can now fly, but they choose to stay at Knepp as it provides everything they need. Their offspring migrate to Spain and North Morocco and have already returned to breed. The estate can support about 50 breeding pairs, and it's expected that they will begin breeding in the surrounding area outside of the estate in a few years.

Throughout the southern blocks, there are small 'topiaried' shrubs formed by the different grazers, which is replicated in the walled gardens by the gardeners. The grazers in the estate prevent the shrubland from turning into just a forest, creating a more varied, biodiverse landscape. Studies show that shrublands store as much carbon as woodlands due to the vast root network, making them just as effective at storing carbon as a forest.



Topiary found in the Southern Block

Conclusion

My work experience with the Horticulture Team at the Knepp Estate Walled Garden was incredibly insightful and inspiring. I gained a deeper understanding of how rewilding principles can be applied to formal garden spaces, and I was impressed by the team's innovative and experimental approach to gardening.

Working alongside the garden team, I had the opportunity to apply the grazing index method, which emphasizes selective grazing and mimics natural herbivore disruption. It was fascinating to see how this approach promotes plant health and biodiversity while minimizing the need for traditional weeding methods.

Learning about the rewilding process at Knepp Estate and witnessing the transformation of previously agricultural land into a thriving ecosystem was truly eye-opening. The integration of large herbivores, such as Tamworth pigs, Longhorn cows, and European beavers, has played a crucial role in enhancing biodiversity and restoring the natural balance of the landscape.

Overall, my experience at Knepp Estate Walled Garden has deepened my passion for wildlife-friendly gardening and rewilding initiatives. I am grateful for the opportunity to learn from the dedicated team and witness firsthand the positive impact of rewilding on the environment.



Costs

Grant Given - £500

Hire Car – £385.33

Fuel – £69.06

Dusk Safari – £60

Total Spent - £514.39

References

Knepp Website - Visit Knepp - Knepp

Wilding by Isabella Tree

Photographs – My own