

# Studying the Native Plants of California

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Merlin Trust Report

## Introduction

A project at Moulton College was started to create a California native plant garden to honour the plantsman Theodore Payne. The garden's plant collection was specifically chosen from the original Californian wild flower catalogues that he produced from 1910 to 1948. Although his catalogue has restrictions in both its size and by the climate of Northamptonshire, the garden at Moulton College, will attempt to imitate some of the growing conditions that were typical of chaparral habit species. The specimens will be chosen specifically to give a variety of colour and form. Some of these plants will be plants not seen before, and some will be well-known varieties found here in the UK but the place of origin may surprise some visitors.

The location has a mixture of sun, shade, free draining and moist deep soil are some of the features of this particular garden, with some modest changes in its elevation and aspect. The garden also has boundaries around all the sides to the east and is not in an area of a frost pocket. The garden will be accessible to the public through the Moulton College Garden Centre and includes a hard surfaced path which is suitable for wheelchairs. Moulton College hope for this collection to become part of the National Collection from a historical point of view being completely related to a specific individual, Theodore Payne. The garden will also be beneficial for education and offer practical horticultural experience to the students at Moulton College, as each plant will be propagated either from seed (from California) or gathered from designated nurseries in the UK for both bulbs and plants.



Fig.1 from [www.moulton.ac.uk/the-college/news-events/news/new-document/september/theodore-payne-garden-opening](http://www.moulton.ac.uk/the-college/news-events/news/new-document/september/theodore-payne-garden-opening)

John Wickham (pictured above) - Past President of the Theodore Payne Foundation, opened the garden on the 12<sup>th</sup> September 2013 following an introduction by Steve Davies, Principal of Moulton College. The Principal noted Payne's passion for plants and, in particular, education drawing on the similarities between our landscapes and echoed Payne's promotion of the use of drought tolerant plants in urban design. The College also extended their thanks to the Finnis Scott Foundation who, together with a private benefactor, assisted in funding the project.

## The Californian Plantsman

Theodore Payne was born in 1872 in Church Brampton which is located in the village of the Althorp Estate, Northamptonshire and the Moulton College campus is located within 5 miles of his birth place. As young man he was inspired by a visit to Kew and at the early age of 21 he decided to move to California working as a gardener. He was a visionary in the preservation of the native plants working at the beginning of the twentieth century and advising gardening in harmony with the natural climate of California. He introduced around 430 California native species into cultivation during his lifetime. In 1893, he moved to Los Angeles and fell in love with its native flora and even in the early years of this century the native vegetation was being lost to agriculture and housing. He urged the use of natives and gave lectures across the state on preserving the wild flowers and landscapes in California. Later in 1903, he set up his own nursery and seed business specialising in California native wildflowers and landscapes when he bought the Evans nursery in downtown Los Angeles. It moved locations several times before finally settling on Los Feliz Blvd. in Atwater Village which is a suburb a few miles north of down Los Angeles, in 1923.

Theodore Payne explored the canyons and beaches of California encountering plants that had evolved to thrive without summer water, which began his lifelong passion for collecting wildflower seeds, including those for Mariposa lilies and blue larkspur (Green, 2006). By 1906 Payne was exporting seeds of California native wildflowers such as penstemons, Matilija poppies and lupines and by 1913, he was president of the Wildflower Club of the Southwest Museum and within two years developed a wildflower garden in Exposition Park (Green, 2006). When his nursery expanded and moved to Los Feliz, he developed yet more native gardens at Rancho Santa Ana and Caltech and began publishing articles promoting the preservation of wildflowers (Green, 2006).

To create the honorary garden, knowledge and an understanding of how these native California plants grow and thrive was required, so the College gave us Foundation Degree in Horticulture & Garden Design students the opportunity to study them. During my search for botanical gardens/nurseries out in California that would allow me to undertake this project, The Theodore Payne Foundation was one them that had direct links to Theodore Payne himself as well as knowing of Moulton College and their plans for a native garden. The Theodore Payne Foundation was more than happy to take me on and teach me all about the native plants and Theodore Payne.

The Foundation is a non-profit organisation formed in 1960 to further the work of Theodore Payne. It operates all year-round and it is a retail California native plant nursery that offers hundreds of different species and cultivars (including vast amounts which are drought tolerant), an education centre with classes and field trips for adults and children. Their mission is to preserve, propagate and promote California native plants, seeds and wild flowers including natives that provide colour, fragrance and habitat for native wildlife. Just three years after Payne's death, a 20-acre site was donated to the Foundation to house the offices and keep a nursery devoted to propagating local plants (The Theodore Payne Foundation, 2013). In the decades that followed, extinction threatened the local flora and the debate concerning the native plants versus exotics began in language that might have appalled the mild-mannered Englishman (Green,2006).

The Theodore Payne Foundation is located in Sun Valley, California (Near Los Angeles) and has 22 acres split up into three sales yards which display over 300 native species for sale, extensive propagation and growing areas, an office and bookstore, as well as demonstration garden areas, a picnic area, wildflower trail, and natural canyon areas (The Theodore Payne Foundation 2013).

During the time there I undertook various tasks and learnt about the native plants of California. I was taught how to propagate, divide, & sow seeds and cuttings of native species including *Festuca idahoensis* 'Stony Creek', *Verbena lilacina* 'De La Mina' & *Prunus ilicifolia*. In division, the plant is taken out of its pot and split into two halves and small clumps of the plant are carefully pulled from the soil and placed in a hormone solution ready to be potted later. Seeds are also sometimes sown; this process starts by filling up a tray with a mixture of soil, perlite (A heated and expanded amorphous volcanic glass which is composed mostly of silicone dioxide. It gives very good drainage and holds 3 times its weight in water) & Vermiculite (A hydrous silicate material commonly used in conjunction with perlite for water retention). The mixture is then pressed down to get it level and compact the soil, and then the seeds are added. Depending on the size of the seeds, they are either placed singly in rows with a gap in between each seed (for example *Prunus ilicifolia* or catalina cherry seeds due to their size) or scattered in a line without gaps if the seeds are very small. The seeds are then covered up with a layer of the soil mixture, levelled out and placed on the bench and watered thoroughly. I was also taught the about process of cleaning seeds during the study in where native seeds would be collected from local sites in where the owners have given permission to the TPF (Theodore Payne Foundation) to do so. After collecting the seeds, a process called threshing would take place in where all the seed pods from one individual plant would be emptied out onto a sieve of the correct size dependant on the size of the seeds. Next, the seed pods are crushed down allowing the seeds to pop out or dehiscence and fall through the sieve, the remaining empty seed pods are now called the chaff and are no longer required. After this, the seeds are put into a blower (Aspirator) machine in where it gets rid of any small bits of chaff and any non-viable seeds. Dissection may follow after this to further check for viability. The seeds are then placed into small packets, labelled and then placed into the original Theodore Payne collection filing cabinet. Some of the seeds that were collected included *Eriogonum Fasciculatum* (Buckwheat), *Artemisia Californica* (California sage bush), *Salvia spathacea* (Hummingbird sage), *Prunus ilicifolia* (California cherry) & *Heteromeles arbutifolia* (Toyon) which is the very plant in where Hollywood gets its name, the Toyon is a very unique plant in that its leaves are identical to that of a holly tree's leaves typically found in the UK although there is no relation.

Also during the study, I visited a few botanical gardens which were arranged by members of the TPF, these places included the Huntington Botanical Gardens, the Getty Museum and Gardens, Descanso Gardens, Sherman Gardens & the LA Zoo and Botanic Gardens. All of which provided a great experience and gave an insight into how these magnificent places are maintained and what they had to offer in terms of plant materials which were very different from that seen and grown at the TPF.



Fig.2 & 3 taken from the Huntington Botanical Garden's Japanese area.



Fig.4 & 5 taken at the Getty Museum and Gardens



Fig. 6 & 7 taken from the Sherman Gardens

## Conclusion

As a whole, I feel the study was a huge success, it gave me a chance to explore and learn new and exciting things about the native plants of California as well as some additional information about the planting of natives and non-natives and how great of an impact non-native species are having on native insect and bird populations as well as their fire risks and invasive nature. Also, during the journeys to and from the TPF various native plant species were learnt which have not yet been mentioned, these include *Quercus argifolia* (Coast live oak), *Quercus kelloggii* (Black oak), *Quercus lobata* (Valley oak), *Juglans californica* (Black walnut), *Ailanthus altissima* (non-native) (Tree of Heaven), *Eriogonum Fasciculatum* (Buckwheat), *Ribes spp.*, *Heuchera spp.*, *Atriplex lentiformis* (saltbush), *Allium unifolium* & *Mimulus ringens* (Monkey flower). By learning these about plants, it has been beneficial to me for when the plants are selected for the Theodore Payne Garden back at Moulton College as we will know exactly how to maintain, propagate, and take cuttings & seeds from them. Due to limitations, the study only lasted a month, but if I could I would definitely like to go back and explore more as I do feel that I didn't have much time to while I was out there and I would also like to go at a different time of the year so that I can see more plants in flower as I learnt while I was out there that a lot of the plants go dormant during the summer months. I am also very thankful to both the Merlin Trust and Diana Aitchison Fund for funding the project as it wouldn't have been possible without their help.

## References

1. Green.E (2006). *The gentle seed of the native revolution*. Los Angeles Times. [Online]. Available from: <http://articles.latimes.com/2006/mar/30/home/hm-paynebio30>
2. The Theodore Payne Foundation (2013). *About us*. The Theodore Payne Foundation. [Online]. Available from: <http://www.theodorepayne.org/> & <http://store.theodorepayne.org/ABUS.html>