The 11th International Oak Society Conference

Central & Southern Mexico

27th September - 10th October 2025

Jamie Slessor

Contents

Project Overview

Since 1992, the International Oak Society has been holding a conference on the genus *Quercus* on a 3-year cycle. Welcoming horticulturists, arborists, researchers, conservationists, environmentalists and general enthusiasts, the conference gives attendees the opportunity to meet, give talks, share knowledge and share passion. The choice of Oaxaca, Mexico as the host for the 2025 conference was by no means a fluke. There are approximately 430 recognised species within the genus *Quercus*, around 170 of which grow in Mexico, 109 of which being endemic. This makes Mexico the most diverse country in the world for oaks and Oaxaca, within which 56 species grow including 5 endemics to the state, is the most diverse state in this immensely diverse country. Now *that* is diverse. To showcase this, the society also organises a pre-conference tour, this year slowly snaking from Morelia to Oaxaca over the course of one week.

I work as an arborist at Royal Botanic Gardens, Kew, and am a member of the International Oak Society with an enthusiastic passion for the genus. I chose to attend this trip as I was incredibly keen to learn more about the oaks of Mexico which I know and work with daily and those which I had no familiarity with before my attendance of this trip. To achieve this, there was no better opportunity than attending this conference, all but overflowing with experts and diversity.

My primary aims for the trip were as follows:

1. To learn about the differing management practices of and cultural connections to *Quercus* species around the world.
2. To better understand the environmental niches and requirements of Mexican natives to inform future planting decisions.
3. To build relationships between the Royal Botanic Gardens, Kew and other institutions to promote collaborative work in the conservation of the genus.

Acknowledgements

I would like to thank the Hardy Plant Society (Kenneth Black Bursary Scheme), the Merlin Trust, the Royal Horticultural Society and the International Oak Society for their generous support towards my trip. I had never thought that I would be able to have the opportunity to attend this conference and I would never have been able to if it were not for the contributions from these parties.

Trip Itinerary

Day 1 - 27/09: 22:30 flight from London Heathrow to Morelia, changing in Mexico City.

Day 2 - 28/09: Arrive in Morelia at 13:20 and head to the hotel for the Pre-Conference Tour welcome reception.

Day 3 - 29/09: Tour begins by exploring oak diversity around **Morelia**. The night to be spent at our hotel in Morelia.

Day 4 - 30/09: Drive to **Santa Rosa de Lima** in **Guanajuato** to further explore oak habitats and spend the night in Guanajuato.

Day 5 - 31/09: Travel to **Puebla** to visit the **Puebla University Botanic Garden** and stay in the city for the night.

Day 6 - 01/10: Travel north to visit oak conservation projects and cloud forests in **Zacapoaxtla** before heading to a hotel in **Xalapa**.

Day 7 - 02/10: We will visit the nature reserve of **Santuario del Bosque de Niebla** and explore the trail of **Hotel Finca La Niebla**. In the evening, we will return to the previous night's accommodation in Xalapa.

Day 8 - 03/10: Spending the day near **Huatusco** at **Vivero las Cañadas** and staying in **Orizaba** in the evening.

Day 9 - 04/10: Travel from Orizaba to **Oaxaca de Juárez** for the conference welcome reception and to check into Hotel Victoria, our hotel for the rest of the trip.

Day 10 - 05/10: Opening day of the 11th IOS Conference. Day spent attending the conference's talks and workshops and spending the night in Oaxaca.

Day 11 - 06/10: Attending the 11th IOS Conference.

Day 12 - 07/10: Attending the 11th IOS Conference.

Day 13 - 08/10: Final day of the conference. Staying in Oaxaca for our final night.

Day 14 - 09/10: Taking a taxi from our hotel to the airport for an 18:30 flight to London Heathrow, changing at Mexico City.

Day 15 - 10/10: Arriving at London Heathrow at 16:00 and taking public transport back home.

Pre-Conference Tour

29th September - Morelia

The first habitat we were brought to outside of Morelia could in many ways have been a brownfield site, and was soon to be developed upon, taking a considerable bite out of the distribution of an oak with an already minute population size. In spite of the status of this habitat however, it was abundant with plantlife and home to a newly described species. *Quercus purhupecha*, the oak of our focus, is short and shrubby and formed mats of leathery foliage between the patches of grasses and bare sandy soil. To my surprise, the species is rhizomatic and its branches grow directly from its rhizome rather than a stem. This differentiates it from similar species in the area such as *Quercus frutex*, another of the approximately 36 species of shrub forming oaks native to Mexico.

Quercus purhupecha

Our second stop of the day took us into the pine-oak woodlands outside of Morelia which were managed for the production of turpentine. Every pine we passed showed long and shallow incisions down its trunk, with a small bucket perched at the base to collect the pitch from the wound. It seemed clear from the surrounding clearcut and agave plantations that these woodlands which supported five different species of oak such as *Q. resinosa* and *Q. sideroxyla* were as dependent on their stewards as their stewards were on them.

Incisions made into the stem of a *Pinus* sp. for gathering pitch.

A mat of the shrubby *Quercus purhupecha.*

30th September - Guanajuato

After a long drive out of Morelia, we arrived at our site outside of the city of Guanajuato. There at 2,600m, we scrambled hillsides to get an up-close glance at *Quercus scytophylla*, *Q. crassifolia*, *Q. laurina*, the petite leaves of *Q. eduardi* and the rose petal pink insides of *Q. rugosa* acorns. The region experiences around 800mm of rain a year, focused primarily in the summer months, after which there is a prolonged drought, an environmental factor which is reflected in the thick and leathery leaves of the oaks which grow there. Some species, especially one which won the award for my favourite oak of the trip *Q. jonesii*, seemed to grow straight out of bare limestone like branching stalagmites. Despite this, they seemed totally at home in this demanding environment.

Quercus jonesii

The woodlands we were amongst were also being used for charcoal production but in a far less intensive and more sustainable way by selective thinning as opposed to clear-felling, as was done historically. In a recent study of their own management practices, this thinning led to a 20% increase in volume of retained trees over the study period compared to those in non-thinned stands.

Top left: Being shown local charcoal production techniques.

Top right: *Quercus jonesii* growing on a limestone slope.

Left: The landscape at 2,600m

2nd October - Zacapoaxtla

A planted *Quercus hirtifolia* by the trout farm.

Our next journey took us up to two local businesses working in collaboration with Marciela Rodríguez from Puebla University Botanic Garden. The first was a distillery working towards growing threatened oaks on their grounds and around their coffee crop. The second business was using the steep valley sides around their trout farm as another spot for in-situ conservation of rare and endangered oaks. Both sites were an inspirational example of conservation through collaboration with local people whose lives are directly tied to the landscapes around them. For the distillery, the cloud forests of *Carpinus tropicalis*, *Platanus mexicana, Ostrya virginiana* and oaks such as *Quercus paxtalensis, Q. sartorii, Q. germana* and *Q. lancifolia* provide structure to the hillsides around them, aid in the purification of water sources, and provide a source of ecotourism. The trout farm's wooded hillsides of *Pinus palustris.* and the oaks *Quercus affinis, Q. laurina* and shrub oak *Q. repanda* played a similar role in the protection of the water source which was imperative to the protection of their livelihood. The two sites served as a haven for threatened oaks *Q. delgadoana* and *Q. hirtifolia* and with continued support, these collaborative efforts will continue to protect both native threatened plants and the forests which connect them with local people.

3rd October - Veracruz

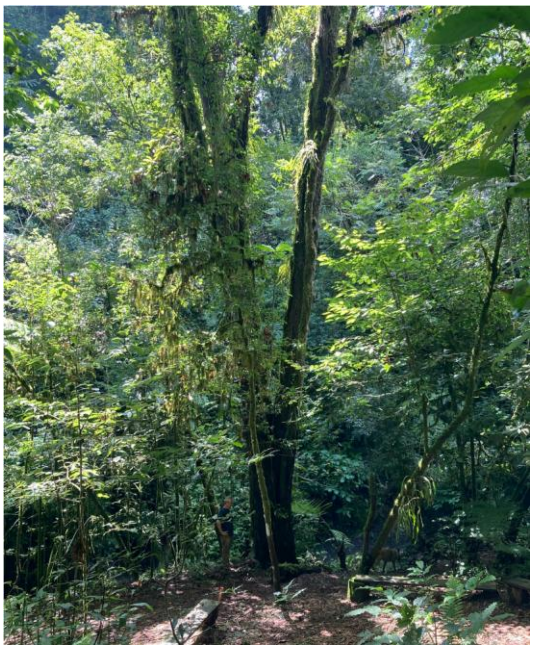
Quercus pinnativenulosa

Within the city of Veracruz, Sanctuario del Bosque de Niebla stands upon land which once served as a coffee and citrus plantation until it was purchased by the local government in 1977. Since then, it has undergone managed reforestation to return it to its natural state of cloud forest. On our walk around the sanctuary path, we learned about the forest around us and the role of oaks among them. The cloud forest is a rare habitat, making up only around 5 - 8% of tropical forest worldwide and is characterised by frequent submersion within clouds. Although highly fragmented, cloud forests show an incredibly high level of diversity with 6000 species of vascular plants, of which oaks make up 40% of the biomass and serve as the preferred host for orchids, bromeliads and other epiphytes. Here we saw the oaks *Quercus germana*, *Q. pinnativenulosa* and *Q. lancifolia*.

Clouds beginning to submerge the cloud forest.

4th October - Huatusco

Like the previous day's visit, our next site was purchased in 1970 as a cattle ranch on a patch of clear-felled forest. Since the 1990s it has operated as a farming co-op consisting of 24 members from neighbouring farms. From that point onwards, they have put considerable effort into restoring what was once pasture back to native, unmanaged forest.



We first walked into the forests that they had planted on the upper slopes of the valley in 1995, consisting of nearly 50,000 trees from the genera *Liquidambar, Juglans, Platanus, Fraxinus* and *Quercus*. Although the trees were not enormous, for its age it was clear that the warmth and 2000mm of annual rainfall was perfect for the growing conditions of these trees and the speed of understory recovery and epiphyte colonisation was miraculous. It was hard to believe that only 30 years ago the humid, epiphyte ornamented woodland we now walked through was pasture for Jersey cows. Fortunately, due to the topography, not all the older woodland was cleared, so as we descended into the valley the age increased with each step. Passing through groves of *Alsophila* sp. and fording the waters of the river below, we stopped at an opening around the fluting trunk of an oak, its canopy reaching over the understory out of view. This tree was our first wild visit with *Quercus insignis* and once one of its golf ball-sized acorns were spotted, the feeding frenzy began. Just witnessing this species in its native habitat was deeply enriching as this tree and the ecosystem that it is part of are things that I have only seen (or seen replicated) in glasshouses. Our guides informed us of a Masters project which found 125 different species of plant and fungi living on only 5 individuals of *Quercus insignis*, revealing the seemingly ever-expanding kaleidoscope of diversity that the cloud forests are host to.

Top: A view up the slopes of the valley with *Alsophila* sp. and *Quercus* sp.

Middle: A towering *Quercus insignis* with its feet in the water.

Bottom: A haul of *Quercus insignis* acorns

11th International Oak Society Conference

Based in the city of Oaxaca de Juarez, this year's conference featured 45 talks on an astoundingly wide range of subjects by speakers from an astoundingly wide geographic range. To summarise what I learned through the conference, I think that it would be best to provide two broad takeaways that I got from the days at the conference.

Importance of Genetic Diversity

Two quotes really stood out for me from Dr. Andrew Hipp's talk 'Infertile Oak Species as Evolution's Workshop': "The genome is a mosaic of history" and "when we lose a species, we lose millions of years of evolution". These quotes tie in perfectly with one from another speaker and geneticist Dr. Antoine Kremer: "If you do not have diversity you cannot evolve". In the context of the climate crisis, this implication is as important as ever.

This knowledge is nothing new, but the importance of both interspecific and intraspecific genetic diversity is critical. Talks from other speakers put these into practical examples. In her studies, Blair McLaughlin grew acorns from *Quercus douglasii* from across their range which includes sites which receive between 250 to 1000 mm of rainfall per year. Although all saplings were the same species, they have varying degrees of genetic diversity. To induce drought conditions, saplings had their watering stopped for a specified period. During this dry period, of those sourced from the driest site, there was a 50% survival rate. The survival of those from the wettest site was less than 5%. As a species native to California, a state showing a marked reduction in annual rainfall, the effect of this diversity means that the species may survive. This is not to say that the species is not under threat, but it shows the importance of intraspecific diversity in survival.

Some are not so lucky. As a generalisation, when the population size of a species decreases, the genetic diversity also decreases. Horticulturist Phillip Schulze explained in his talk about the conservation status of the threatened species Quercus hinckleyi how all ex-situ representations of the species come from the exact same population. This low diversity is further emphasised by the fact that two studied wild specimens 30m apart had the same genetics. For the species this may mean that the populations are poorly adapted to any potential threats, whether it be climate or pests, as they will all respond in an incredibly similar way.

There Is Work to Be Done

It is becoming increasingly clear that the effects of human activity and our changing climate are being felt by oaks and can even be recognised in the changes to their phenology. In oaks, this has been seen through increased amounts of growth, increased levels of fruiting and earlier flushing of leaves. When following worst case scenario climate projections for 2125, analysis showed an IUCN Red List status of at least Endangered for all but one studied species of California native oaks, 4 of which would at that point have no climate suitable environments at all in the state. A problem that is tied into this is the fact that IUCN Red List designations are only for the current climate scenario and do not consider climate projections. When these projections are applied to these Red List designations, they change dramatically and unilaterally for the worse.

We heard from many researchers of the oaks of Mexico that alongside this threat brought by climate, deforestation and population fragmentation was also having a monumental effect on the survival of native species. We learned some concerning statistics to confirm these. We learned how Mexico has a deforestation rate of around 1% per year and that between 2001 and 2017, 20% of the forest cover

loss can be attributed to the production of avocado farms. For cloud forests, it is likely that following worst case scenario climate projections for 2070 would lead to an 80% reduction in cloud immersion in these forests, a defining feature for this rich and precious environment. This, alongside other climatic factors, would reduce the climatically suitable forest for *Quercus insignis* by 68% in only 45 years.

It is hard to not find these ideas almost existentially daunting and there is not really a way, nor much of a reason, to sugarcoat it. But what filled me with hope is the display of dedication, passion and perseverance shown by the room filled with experts around me. Although their statistics are liable to make you shudder, they are also doing great work to ensure that these species do not go missing and that these millions of years of evolution do not get lost forever.

Tom Fry and I at the Arbol del Tule, a *Taxodium mucronatum* with the widest tree trunk in the world. Conveniently a 30-minute taxi ride from the conference.

Conclusion

The diversity of landscapes that we were gifted on this trip was truly mindboggling, and that is without including the diversity of plants which inhabit them. By seeing these oaks firsthand not only did I get to witness them in their natural state but also their relationships to the people and plants around them. Before attending this trip, I had no idea of the diversity of the genus and oak habitats, and I now see many of the plants out in the landscapes that I work around in a different way now that I know their natural states. Being able to have this breadth of knowledge to think back on when making future plant selection choices will be incredibly valuable, not just for plants that I saw but also those for which I am more familiar with their native habitats.

Throughout the trip, the other main takeaway I had was the importance of collaboration. It may seem at times like a bit of a buzzword but if this trip showed me anything then it was that collaboration is key. Collaboration with colleagues, experts and local people from grassroots to international societies. Interdisciplinary, intergovernmental and interspecific collaboration. With a shockingly high number of the living things of the world facing existential threats, it is impossible to effectively plan and implement conservation and protective action without involving a wide breadth of hands.

Being given the opportunity to attend this conference, to meet and learn from the local people and other attendees and to experience firsthand ecosystems with such phenomenal diversity, has had and will continue to have a meaningful effect on my career and future development. I left the conference renewed with a sense of duty and enthusiasm to dedicate myself towards the conservation of plants and sharing this enthusiasm with others. I would like to thank again those who contributed to my trip, and I hope that over my career, I can pay back this kindness through my work and passion.