

Oaks at Arboretum des Pouyouleix ✱ 8 June

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Thanks to Tom Christian who visited here in the Summer of 2022, the idea of organising an Oak Study Day at the Arboretum des Pouyouleix was born. On 8 June 2024 this idea became reality as cars began to arrive down the narrow road that leads to our house and, beyond, to the Arboretum.

We proceeded to the first point on our agenda: *a petite causerie* I had put together on the subject of identifying oaks based on what I have learned from others or from personal experience after eighteen years of roaming around the world looking for oaks, trying to identify them, and, undoubtedly, making many mistakes. I am grateful to the many passionate oak enthusiasts who have contributed to the development of this collection with their questions, answers, ideas, seeds, plants, and friendship, and to those who have made my numerous expeditions possible and without which the Arboretum des Pouyouleix would not be what it is today.

The importance of knowing the geographic distribution of the infrageneric sections and what morphological and phenological characteristics define them; grasping the extent of the phenotypic plasticity of species in the genus *Quercus*; the need to keep an open mind about what individuals of a species 'should' look like if your idea of this is based on only a few specimens; a few tips about what leaves to look at and how to look at them; an explanation of how to determine if acorn maturation is in one or two seasons: these were the things I talked about. In conclusion I said a few words about when we started planting and the current composition of the collection: 321 taxa, of which 226 species, 12 subspecies, 9 varieties, 67 hybrids, 1 cultivar, and 6 question marks, represented by 914 trees. The Arboretum is planted geographically with about ⅘ devoted to the Americas, ¼ to Asia and ⅙ to Europe/North Africa/Middle East.

The morning stroll

Leaving the nursery, transformed into a classroom for the morning and later into a lunch room, I lead the group to our point of departure, two *Q. 'Autopista'* (or *Q. aff. miquihuanensis*) to illustrate how one determines acorn maturation time. The small acorns we were looking at were clearly on last year's growth, i.e. the fruit of the development of female flowers pollinated in spring 2023 that will attain maturity in autumn 2024. This year's new growth was clearly distinct from last year's on which grew the maturing acorns. In the absence of new growth, another indication would be that female flowers pollinated this spring would not, in early June 2024, have acorns of the size we were looking at.

Just next to the *Q. 'Autopista'*, *Q. hinckleyi* is performing well, despite being too shaded by the unexpected exuberance of its neighbour and the fact that its



Quercus depressa; inset shows maturing acorns on last year's growth (2023) that will mature in autumn 2024.

natural distribution is in much drier conditions, as is a very dainty *Q. vaseyana* just to the left.

Continuing on our way through North America, we stop to admire one of the stars of the Arboretum: *Q. depressa*. Two small plants, planted in 2010 and a third planted in 2014 with a few metres between each, have formed a massive colony spreading 7.5m long and 3.5m wide. It is covered in beautiful pinkish-orange when the catkins appear, and then the new leaves, a deep bordeaux color, gently fade to green. It fruits abundantly, and those who have sown the seeds report that the phenotypic profile corresponds to the species.

To the right, *Q. resinosa* coming back to life as it has been doing for the past ten years after every winter that destroys all its aerial parts; *Q. minima*, looking as charming as it always does, and fruiting as it has been for several years, though rather parsimoniously, and *Q. brandegeei*. The latter two gave participants the chance to see two species that belong to the very small section *Virentes* (seven species).

Passing by *Q. carmenensis* and *Q. mcvaughii*, we arrive in the area that I sadly call desolation row. Planted here are the oaks that come from very dry, very hot places, like *Q. ajoensis*, *Q. berberidifolia*, *Q. palmeri*, *Q. pungens*, and *Q. turbinella* (from Mexico and Western USA); *Q. xacutidens*, (*Q. cornelius-mulleri* × *engelmannii*), and *Q. havardii* (found only in the United States); and *Q. deliquescens* and *Q. pringlei* (found only in Mexico). Though admittedly these taxa have never been exuberant, I think it likely that the extraordinary amount of rain and relatively low temperatures during both spring and summer in 2023 and 2024 will have marked *le coup de grace* for more than one



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River outlook: *Quercus agrifolia*, *Q. mcvaughii*, *Q. sideroxyla*, *Q. spp.* & *Q. agrifolia* var. *oxyadenia*

of them. A significant exception would be *Q. frutex* (Mexico), which has grown into an amazing shrub, from the 15 cm at which it was planted in April 2011, to a clump about two metres tall with a circumference of 15 m. In spring, the male flowers cover it in a blanket of gold, and for several years now, it has produced an abundant crop of mature acorns.

Across La Grande Prairie and down to the river (almost)

After desolation row we are now facing what we call La Grande Prairie – a triangular, sloping field that leads down to the Côte river, through the *Q. robur*-dominated woodland that winds through the Arboretum. Providing wind/cold protection and well drained soil, these slopes have proven to be excellent spots in which to plant many taxa.

It was here that we planted our first (and rather large number of) oaks on 7 December 2003. The species we planted are those that have been available to cultivation for quite some time, and all of them are from the United States.

Immediately in front of us, *Q. hemisphaerica*, with its very smooth bark, indicates that it is a section *Lobatae* oak. What do the leaves tell us? ALL section *Lobatae* oaks with entire leaves have bristle-tipped apices...but not always on all of the leaves. With some species, *Q. hemisphaerica* for example, you have to look rather diligently to find those that do.

Continuing our journey westward, we arrive at the north-facing slope where many rare oaks, grown from seed acquired during various expeditions since 2006 or through exchanges with other oak aficionados, have been planted. Although I said earlier that section *Cyclobalanopsis* oaks are, in my view, the most elegant of all, there are quite a few section *Lobatae* oaks from Mexico that could win that prize. *Quercus viminea*, for example, now standing before us with its very long, narrow leaves and graceful silhouette. Collected in 2010 in Sonora, and planted (three) in 2012, measuring between 23 cm and 38 cm, the tallest of the three measures about 7 m today.

Lining the top of this slope, after the *Q. viminea*, there is *Q. agrifolia* (one of the few oaks from California that does well in European collections), *Q. ilicifolia*, as well as (I think) a hybrid between *Q. arkansana* and *Q. ilicifolia*. Moving down the slope, a rather tall-for-the-species *Q. myrtifolia* (6–7 m), with, off to the right, several *Q. invaginata*, and to the left, a bit further down the slope, two *Q. inopina*. The specific epithet means ‘unexpected’ or ‘unimagined’ – and indeed, *Q. inopina* must have surprised Mr. Ashe, who described the species in 1929 from the colonies growing in the pure white sand dunes of north-central Florida. Even more unexpected is that it grows as well as it does here.

I should say at this point that, given our limited time and the many oaks I would like everybody to see, we have not really stopped long to look at anything else but we did have time for a quick glance and a few words about *Arbutus xalapensis*, *Betula lenta*, *Cercocarpus betuloides*, *Cladrastis kentukea*, *Cornus nuttallii*, *Indigofera kirilowii*, *Liriodendron tulipifera*, *Torreya taxifolia*, and a few others.

We are now about halfway down La Grande Prairie, making our way towards another rare oak (in the wild and in collection) while admiring the more common *Q. marilandica*, *Q. stellata*, *Q. muehlenbergii*, and three magnificent *Q. phellos*, measuring close to 20 m (which measured about 4 m when they were planted in 2003). The species we are headed for, *Q. tomentella*, (or the hybrid between it and *Q. chrysolepis*) described by Mr. Engelmann in 1877, belongs to one of the smallest sections, *Protobalanus*, and has a very restricted distribution in the Channel Islands (US), and in Baja California and Guadalupe Island (Mexico).

A European/North African/Middle Eastern enclave

We continue down to the bottom of La Grande Prairie where a path leads into the *Q. robur*-dominated forest and down to the river. On the right, the north-facing slope is what we call la Pente Europe – sandwiched between two slices of the Americas, one that we had just been through, the other down alongside the river.

Planted here are mostly Mediterranean, Middle-Eastern, or North African taxa that we thought would profit from this protected and well drained situation: *Q. estremadurensis*, *Q. infectoria*, *Q. look*, *Q. xnumidica* (*Q. afares* × *Q. suber*), *Q. petraea* subsp. *austrotyrrhenica*, *Q. pseudococcifera*, and others.

From where we are, we have a splendid view of the oaks growing on the land between the bottom of the woodland slopes and the river. We do not have time to go down and look at these trees more closely, but time enough to continue a bit further down to another 'outlook' at the top of a west-facing slope planted fairly recently with a mix of species from the Americas, and from where we can also see more of what is planted down by the riverside.

The lane that leads to lunch

Backtracking, we reenter La Grande Prairie, headed for the south-facing side. Here, the slope is called La Pente Mexicaine (but we shall have to rename it since there are now also a few from the US). Stealing the show are two species relatively new to cultivation and both astounding in beauty and vigour, *Q. acherdophylla* and *Q. delgadoana*, while three other species also here, *Q. toxicodendrifolia* (considered for a long time to be a synonym of *Q. lancifolia*), *Q. pinnativenulosa*, and *Q. calophylla*, have nothing to be ashamed of. About halfway down the slope that leads to the river, La Pente Mexicaine becomes Hickory Hill, planted with *Carya*, *Acer*, and a few *Quercus*.

Continuing our stroll along the rim of the slope, we arrive at a *Q. rysophylla* grove composed of six trees planted in 2008, measuring between 23 cm and 40 cm, which today measure about 13 m. We cross La Grande Prairie at the top end, headed for our last pre-lunch amble, behind the house. Acquired just a few years ago, this was constructible, not agricultural, land, and so it has become a fairly expensive hotel for a lot of little spoiled oaks. We started planting here in 2021, predominantly Mexican species, with a few from the United States. There are many rare oaks here, some for which little, if anything at all, is known about their behaviour in cultivation in this part of the world. These plants are still quite small but worth seeing. The identities of some of them are not clear to me, but as the plants are quite young (2–4 years old) I am waiting a bit before studying this more closely.

Back in North America

If one is building an oak collection in northern Europe with the ultimate though unattainable goal of assembling a comprehensive oak collection, obviously a lot of the ground must be devoted to the Americas and, especially, to Mexico. After a splendid lunch we continue on through the Americas, headed south, towards a subject of debate. Originally identified by me as *Q. flocculenta* (seed collected in 2010, in Nuevo León, Cerro Potosí) we planted five between 2012 and 2014. There is an enormous variation in both the pubescence and shape of the leaves. At one point I thought that there was perhaps some hybridisation with *Q. hypoxantha* but I have finally accepted Allen Coombes's opinion which has always been that this is *Q. eduardi* revealing one of its myriad instantiations and, as such, a good illustration of the point I stressed this morning about keeping an open mind about what a species 'should' look like.



Quercus 'Belle d'Aquitaine' and *Quercus rysophylla* (right)

We move eastward, lured by an exuberant *Q. grahamii* (height at planting in 2012: 0.46 m; height 2021: 9 m) next to which is a *Q. crassifolia* (height at planting in 2008: 0.45 m; height 2023: 13 m). Not far from these trees, a clump of three *Q. sideroxyla* and three *Q. chihuahuensis* are a good example of what seems to be the rule here: oaks from section *Lobatae* are without exception fantastic performers while most of those from section *Quercus* are not so vigorous, and equally not as aesthetically appealing given that many of them suffer from powdery mildew and other such leaf ailments. Most of the section *Quercus* oaks from Mexico, and a few from Asia and the US, do not suffer from this. An example would be *Q. lyrata*, like the one to the far left of the small bridge over the stream that we now cross to continue our way through North America.

In front of us now, a towering *Q. montana*, with astonishingly little powdery mildew given the rain we have had since 2023, and, to the right, *Q. oglethorpensis* and another *Q. sideroxyla*. On the left, as we continue onwards, there is a group of three vigorous *Q. arkansana*, which we get to after passing two rare Mexican oaks, *Q. brenesii* and *Q. planipocula*, and one from the US, *Q. robusta*. Just beyond the *Q. arkansana*, *Q. rysophylla* is waiting for us in its incomparable splendour, along with *Q. canbyi* × *rysophylla* and the cultivar 'Belle d'Aquitaine'.

Looking back towards the stream, there are three tall and lanky *Q. saltillensis*, fine specimens that have been fruiting like mad for the past several years, and beyond them across the stream, a double row of 12 *Q. sinuata* var. *breviloba*, charming medium-sized trees that exhibit lovely leaf colour change from rusty orange to red, a great accompaniment to the autumn fiery red of the four *Q. acerifolia* growing behind them. Though this part of the Arboretum is devoted to the Americas, one of the most outstanding trees here is...*Q. suber*.

This plant was given to us many years ago at a time when we knew nothing about oaks, as *Q. chrysolepis*, and so it was planted in North America before we realised (the year after) that this was *Q. suber*. If there is a lesson to be learned here it comes from the fact that this tree is growing in exactly the opposite conditions (deep, fertile soil, always moist) one associates with this species, and yet it is five times bigger in all of its dimensions than two other *Q. suber* planted in typical conditions for this species. Like the *Q. frutex* mentioned earlier, these are good examples of the adaptability of oaks and how much we don't know about this.

Continuing our journey southward, with still quite a way to go before we get to Asia, we encounter the graceful *Q. ×dysophylla* (*Q. crassifolia* × *crassipes*), on the right, and on the left, the very vigorous hybrid between *Q. grahamii* and *Q. mexicana*. Planted in 2005 measuring 1.05 m, it measured 12 m in 2021. Just ahead of us, a *Q. hintoniorum* planted in 2007 mysteriously 'died' a few years ago. After being cut back (always give them a second chance) it resprouted the following year and so I selected the best shoot, staked it up, and cut off all of the others. The following year it resprouted with a vengeance that convinced me to stop interfering. It now forms a beautiful shrub, about 3 m tall and 12 m in circumference. Past a few young oaks (planted in autumn 2023/spring 2024), a group of several *Q. crassipes* and *Q. mexicana*, plus a bit further on, a hybrid between the two.

From where we are, we have a good view of part of the Arboretum that is devoted to Asia, but to arrive in *Cyclobalanopsis* country we have still to get past two vigorous *Q. hypoleucoides*, three *Q. marilandica* var. *ashei*, two *Q. ×bushii* (*Q. marilandica* × *velutina*) on steroids, and three *Q. fusiformis*. We pay our respects to a lovely *Q. meavei* showing off a full head of delicate pink-violet young leaves, and arrive at the frontier between North America and Asia: a double row of trees and shrubs running east-west, planted on the north side with non-Fagaceae taxa from the Americas, and, on the south, non-Fagaceae taxa from Asia, including *Aesculus californica*, *Arbutus arizonica*, *Carpinus caroliniana*, *Castanea pumila*, *Fraxinus insularis*, *F. texensis*, *Halesia monticola*, *Juglans mandshurica*, *Maclura tricuspidata*, *Ulmus crassifolia*, and *Zanthoxylum* spp.

Crossing the border into Asia

As we cross the frontier, there stands a hands-down gold medal of elegance, *Q. myrsinifolia*. In the distance, along the narrow lane that is the eastern border of the Arboretum, there is a sprawling *Q. acutissima* (section *Cerris*), and, closer to where we are, various specimens of *Q. wutaishanica* and *Q. aliena* from section *Quercus*; *Q. floribunda* from section *Ilex*, and *Q. castaneifolia* from section *Cerris*. We walk past a group of young *Q. serrata* and continue on towards two young *Q. leucotrichophora*, not far from a group of *Q. phillyreoides* and *Q. variabilis*. The *Cyclobalanopsis* do not grow as fast as the *Lobatae* oaks, the absolute record holders in every sense of the word in this Arboretum.



Quercus myrsinifolia, one of the most widely cultivated oaks in section *Cyclobalanopsis*.

Quercus hypargyrea, which fruited last year for the first time, is doing it again. We sowed some acorns of the 2023 crop to see whether or not there would be any manifest hybridisation. Nearly all the acorns germinated and the young plants look quite like *Q. hypargyrea*. We leave behind us *Q. dentata* (section *Quercus*) and *Q. dolicholepis* (section *Ilex*) to meet one of the loveliest of all the *Cyclobalanopsis*, *Q. salicina*, which, in addition to its beauty, is one of the species that suffered absolutely no damage whatsoever in the cold spell of 2012. The colour change of the new leaves from burgundy red to pink and finally to green is of great poetry.

Continuing toward the western limit of Asia, we pass *Q. acuta*, *Q. oxyodon*, and a *Q. hypargyrea* that lost every single one of its leaves (still visible on the ground) during the 2024 very early late frost and, again, I think thanks to this year's unusually abundant rain, had a full new set less than two weeks later.

We have arrived in the part of Asia that houses not only oaks but also members of their Asian sister genera: *Castanopsis* and *Lithocarpus*, but the afternoon is going by quickly and we have not finished with the oaks of Asia, and not yet started with the oaks of Europe/North Africa, so we remain focused on oaks as we head back north. Of special interest here are several of the Asian 'golden oaks' (e.g. *Q. longispica* and *Q. pannosa*), as well as *Q. senescens*, with its greyish abaxial pubescence (hence the specific epithet), and *Q. sessilifolia*. Equally interesting, but not as happy here, are *Q. spinosa* subsp. *miyabei* and *Q. setulosa*, both of which just struggle on from one year to the next, as do the



Quercus salicina with vivid new growth.



Quercus engleriana, like *Q. salicina*, is extremely hardy.

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Q. tarokoensis. I am happy to report that this latter, of which we have six, have grown remarkably this year, again, certainly due to the great amount of rain. *Quercus engleriana* (section *Ilex*) of which we have four splendid specimens, are not far. This is one of the finest of the hardy evergreen oaks with thick, dark green leaves and elegant silhouette.

Finishing the day in Europe, the Middle East and North Africa

We cross the border with *Q. look*, a lovely Middle-Eastern oak, closely related to *Q. cerris*, with daintily lobed leaves. Like many of the oaks from this region they are not fast growers (which is an adaptation to living in dry, hot conditions), the one we are looking at having attained about 3m in 11 years. Close by, a group of *Q. congesta*, which, like many other taxa in the 'pubescent White Oak' group (e.g. *Q. humilis*, *Q. leptobalana*, and *Q. virgiliana*) will probably end up being...*Q. pubescens*. Also not far, a taxon from Bulgaria whose name, *Q. proroburoides*, was validated in 2017 after its initial description in 1969 as *Q. macranthera* subsp. *balcanica*. The specific epithet expresses the authors' opinion that this taxon is ancestral to section *Quercus* oaks.

In front of us now are two *Q. afares* (a species that grows only in Algeria and Tunisia) that have grown about 9m in 11 years, and both of which have been fruiting since 2020. Nearby are a few other oaks from section *Cerris*, including *Q. cerris*, *Q. xhispanica* (*cerris* × *suber*), *Q. ithaburensis*, and *Q. macrolepis*; from section *Ilex*, *Q. airensis*, *Q. aucheri*, and *Q. rotundifolia*; and, from section *Quercus*, the smallest European/North African oak, *Q. lusitanica*, from Morocco, Portugal and Spain, which seems to be happy here in these more northerly and wetter quarters.

We are now overlooking the pond and have a nice view of La Grande Prairie, as we walk past three *Q. pontica*. Unlike *Q. sadleriana* (the other species in section *Ponticae*), it does well here. From where we are we also have a general view of the *Acer* collection that occupies the valley going down to the river.

As we leave Europe and Asia behind us, we are welcomed back into North America by *Q. opaca*, the prettiest shrub oak from Mexico, which points us in the right direction for a refreshing drink, a place to sit, and the end of an exquisitely enjoyable day. As we finished the morning class, Shaun Haddock said to me, "To what section it belongs is not the first question, the first question is, to what genus does it belong? How do you know it's an oak?" Indeed. I regret that he did not ask this question for everyone to hear because, number one, he is right, it should have been my first question, and, number two, it would have made an interesting subject of conversation. There is an easy answer to this question, but its usefulness is seasonal. So, regardless of the season, how do you determine if the tree you are looking at belongs to the genus *Quercus*?

I hope all of you who participated in this Oak Study Day, and those reading this now, will continue on your personal oak path and that our respective ones will cross again, say, in a hundred years or so, in other words, after a lapse of time significant for trees. Before then would be quite nice too.

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Quercus afares from Algeria and Tunisia, with a typical section *Cerris* acorn cap.

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