

Growing Mexican Oaks in Devon, UK

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The Start

I have been collecting oaks for the last 27 years at my home in Devon in South West England where we have less sunshine than in the eastern counties, but rather higher rainfall. In winter we tend to have one or two cold spells, interspersed with warm periods. We have our fair share of snow and frost, and sometimes damaging, sub-arctic winds. But we knew oaks grow well on our soil, because the dominant hedgerow tree in our part of Devon is *Quercus robur* L.

The Chevithorne Collection

The collection, which currently consists of about 400 different taxa, is far from complete and about 95 of the taxa are still at the greenhouse and polytunnel phase. Most of these will be planted out over the next 1 – 3 years. About one quarter of the collection consists of oaks which come from Mexico. There are three categories: Oaks that only grow in Mexico, oaks that grow in both Mexico and the US, and oaks that grow in Mexico and in the other countries of Central America. This paper encompasses all three categories.

The First Batch of 26 Mexican Oaks

When the collection started at the end of the 1980s there were few Mexican oaks easily available. We planted our first Mexican oak in 1989, *Q. durifolia* Seemen ex Loes., an upright angular tree which is now just under 10m in height. Quite early on we backed expeditions to Mexico whose main purpose was to find the acorns of a wider range of Mexican oaks. These collection trips have continued on a regular basis and have been getting bigger and more professionally organised.

By the end of the 90s we had acquired 26 Mexican species. They varied from easily recognisable oaks like *Q. rysophylla* Weath. and *Q. sartorii* Liebm. to more exotic ones, (e.g. *Q. crassifolia* Bonpl. and *Q. lancifolia* Schldl. & Cham.), to small bushy oaks like *Q. berberidifolia* Liebm., *Q. grisea* Liebm. and *Q. intricata* Trel. (this was planted in 1992 and is an attractive small bush only 1.6m high). Only two oaks, *Q. uxoris* McVaugh and *Q. insignis* M. Martens & Galeotti, consistently failed to get through an English winter and consequently we keep them in the greenhouse in winter. We made no special provisions for the other Mexican oaks and they were therefore widely distributed throughout all the main areas of the Arboretum. A small number of endangered and/or delicate oaks are wrapped in netting during the winter. The primary objective is to reduce wind chill which is a major problem during prolonged cold spells. We only do this with some of the smaller trees in the hope that if you can get them through their first few winters, the bark will get thicker and they are more likely to survive.

MEXICAN OAKS AT CHEVITHORNE BARTON

This is a list of Mexican oaks which joined the Chevithorne collection from 1989 to 1999 and from 2000 to 2009. All of these oaks have been planted out and been through at least one winter out of doors. These are the first oaks of each species. During the 20 years, we have planted more of these species. In some cases we have up to 6 different specimens. The estimated height is of the tallest tree of each species which is in the collection now. The fourth column designates which oaks are Red, White and Intermediate. The fifth column shows which are Hardy, Half-Hardy and Delicate.

FIRST BATCH

From 1989 to 1999

Name of Oak	Common Name	Estimated Height (m) in 2011	Red, White or Intermediate	Hardy, Half-Hardy or Delicate
Quercus acherodophylla		15.0	R	H
Quercus acutifolia		8.0	R	HH
Quercus affinis		13.0	R	H
Quercus agrifolia	Coast live oak	9.0	R	H
Quercus berberidifolia	California scrub oak	0.8	W	H
Quercus chrysolepis	Canyon live oak	10.0	Int	H
Quercus crassifolia		13.0	R	H
Quercus crassipes		10.0	R	H
Quercus dumosa	Nuttall's scrub oak	3.0	W	H
Quercus durifolia		9.5	R	H
Quercus engelmannii	Engelmann oak	5.5	W	HH
Quercus germana		2.6	W	HH
Quercus insignis **		3.0	W	D
Quercus intricata	Coahuila scrub oak	1.6	W	HH
Quercus laceyi	Lacey oak	1.0	W	H
Quercus lancifolia		1.2	R	D
Quercus mexicana		10.5	R	HH
Quercus planipocula		2.6	R	D
Quercus polymorpha	Netleaf white oak	2.5	W	D
Quercus rysophylla × Q. sartorii *		15.0	R	H
Quercus sartorii		10.0	R	H
Quercus subspathulata		0.3	W	D
Quercus tomentella	Island live oak	1.5	Int	D
Quercus uxoris **		3.0	R	D
Quercus vaseyana		1.1	W	HH
Quercus wislizeni	Interior live oak	9.0	R	H

* This was called rysophylla until the name was changed in 2011

** Now kept in GH every winter

R = 14; W = 10; Int = 2; TOTAL = 26
H = 13; HH = 6; D = 7; TOTAL = 26

SECOND BATCH

From 2000 to 2009

Name of Oak	Common Name	Estimated Height (m) in 2011	Red, White or Intermediate	Hardy, Half-Hardy or Delicate
Quercus acerifolia		2.0	R	H
Quercus agrifolia var. oxyadenia		1.0	R	H
Quercus arizonica	Arizona white oak	1.0	W	D
Quercus canbyi		5.0	R	H
Quercus candicans		2.2	R	HH
Quercus castanea		7.0	W	HH
Quercus conspersa		8.0	R	H
Quercus cornelius-mulleri	Muller's oak	0.8	W	HH
Quercus crispipilis		6.0	R	HH
Quercus delgadoana		9.5	R	HH
Quercus ×dysophylla		1.7	R	H
Quercus emoryi	Emory's oak	3.3	R	H
Quercus fusiformis	Texas live oak	2.0	W	H
Quercus glabrescens		7.0	W	H
Quercus gravesii	Chisos red oak	2.5	R	H
Quercus greggii		0.4	W	H
Quercus grisea	Grey oak	1.2	W	H
Quercus hinckleyi	Hinckley's oak	0.3	W	D
Quercus hintoniorum		0.8	R	H
Quercus laeta		0.7	W	H
Quercus laurina		10.0	R	HH
Quercus miquiluanensis		1.5	R	H
Quercus muenlenbergii	Chinquapin oak	4.7	W	H
Quercus potosina		0.3	W	D
Quercus pungens	Sandpaper oak	0.7	W	HH
Quercus rugosa	Netleaf oak	2.0	W	D
Quercus sinuata	Durand's white oak	0.7	W	HH

R = 13; W = 14; Int = 0; TOTAL = 27
H = 15; HH = 8; D = 4; TOTAL = 27

Red, White and Intermediate oaks	Total	Hardy		Half-Hardy		Delicate	
		Count	%	Count	%	Count	%
Red	27	18	67%	6	22%	3	11%
White	24	9	38%	8	33%	7	29%
Intermediate	2	1	50%	0	0%	1	50%
	<u>53</u>	<u>28</u>		<u>14</u>		<u>11</u>	

The Second Batch of 27 Mexican Oaks

The next decade from 2000 to 2009 saw a steady increase in interest in Mexican oaks and we were sent or acquired many new packets of acorns. Often they were duplications of species already at Chevithorne, but they usually came from different Mexican states and it gave us a chance to try them in different parts of the Arboretum. Our policy is to have two of each species, where possible, and in a few cases we have up to six of particularly unusual species. By 2009 we had another 27 species of Mexican oaks planted out, which had survived at least one winter outside.

The Table

I have kept detailed records of these 53 oaks – divided into 2 batches. The table lists the oaks involved and summarises the data.

In the table the third column gives the estimated height of the tallest of each species at Chevithorne. I have done this because in a few cases the first specimen either died or did not grow properly. The fourth column indicates whether a species is a red, white or intermediate (golden) oak, and the fifth column gives my estimate of the hardiness of each species.

Findings of Note

A. Fast Growers

Fourteen of the 27 red oaks have grown to a minimum of 8m. The really fast growers are *Q. crassifolia*, *Q. affinis* Scheidw. and *Q. acherdophylla* Trel., all of whom have grown to at least 13m. The two tallest trees were the two *Q. candicans* Née which were cut back by the winter of 2010/11. The figures are even more remarkable because, looking at our new website, there are 27 individual specimens of the 14 red oaks mentioned above, which have grown to at least 8m in height. The 14 white oaks which are judged to be hardy range from small bushes to 7m in height. The two biggest are *Q. castanea* Née and *Q. glabrescens* Benth., both 7m in height and a good shape, and they include some smaller species (I like particularly *Q. laceyi* and *Q. greggii*), many of which could be grown in small gardens and on sites where a big tree would be inappropriate. Of the two intermediate oaks, *Q. chrysolepis* Liebm. has grown to 10m and *Q. tomentella* Engelm. has only grown to 1.4m in height.

B. Hardiness

I have divided the 53 oaks into three categories: Hardy, Half Hardy and Delicate:

1. **Hardy.** Twenty-eight of the 53 are judged to be “hardy”. These range from *Q. affinis*, *Q. acherdophylla*, *Q. wislizeni* A. DC., *Q. laurina* Bonpl. and *Q. sartorii*, which have never, in up to 20 years, suffered any weather damage, to others which can be slightly affected by the cold winters. It should be borne in mind that all these Mexican oaks seem to crave strong sunlight and most of them appreciate being protected from the wind.

2. Half Hardy. This applies to 14 of the 53 and encompasses species where some specimens of a particular species do well and others fail. It includes 4 of the fast growing red oaks which were caught by the exceptionally cold weather in November/December 2010 (when the sap was still up). The bark at the bottom of these trees split, frost got into the trunks and these trees apparently died. This included our champion *Q. candicans*, which had grown to 18m in about 12 years. Of the 4 trees that had apparently died, 3 have sprouted again from the base in July of 2011. Particularly vigorous growth has appeared at the base of one of the *Q. candicans*, where the shoots are now 2.5m high. It should make a reasonable tree again in time as it seems that the large root system is still intact. One of our *Q. acutifolia* Née, 8m high, suffered equally damaging frostbite to its bark, but so far is flourishing.
3. Delicate. This has been applied to 10 of the 53 oaks. This category includes all the other oaks which were badly affected by the 2010/2011 winter, and includes the two oaks kept in the greenhouse over the winter.

A Warning

It must be recognised that our experience at Chevithorne on hardiness is based on a very small sample (1-6 specimens of any one species), and a particular specimen can be affected by where it is planted, for example, under the canopy of a big tree.

Our conclusions can be nothing more than a pointer, and many more of these Mexican oaks will have to be grown in different parts of the UK before we can be more definite on which ones are hardy.

C. A Hybrid

Another aspect is that with so many oaks from all over the northern hemisphere in our arboretum, one might expect some interesting transcontinental hybrids. We have only identified one so far, which was observed by James MacEwan. This is a hybrid between *Q. glabrescens* from Mexico and *Q. robur* from Europe. Both parents are white oaks. It displays some signs of hybrid vigour.

D. Pachydermatous Bark

We have found that a number of the bigger Mexican oaks are developing very interesting bark. This takes a form, usually at the base of the trunk, which can best be described as pachydermatous, *i.e.*, similar to an elephant's trunk. It is usually confined to the bottom two to four metres of the tree, and each species has subtle differences. Four oaks which demonstrate this are *Q. mexicana* Bonpl., *Q. laurina*, *Q. conspersa* Benth. and *Q. acutifolia*. These four oaks are planted together in the area north of the Tapir Orchard so that the minor variations between them can be observed. They are red oaks and usually fast growing. It is also worth mentioning that our two semi-mature trees of *Q. crassifolia* have a corky bark up to about 3m and then the trunk changes suddenly to a conventional bark. There are other oaks, which are not mature enough to have fully developed pachydermatous bark, but seem to be heading that way. I can visualise collections in the future consisting entirely of oaks with unusual bark.



Quercus candicans before the freeze

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The Past

A few Mexican oaks are known to have been grown in England for about 200 years -- for example, *Q. chrysolepis* was introduced to England by Charles Sargent in 1877, *Q. gambelii* Nutt. in 1894, and *Q. muehlenbergii* Engelm. in 1822. We know the remarkable *Q. crassifolia* at Kew is probably 100 years old.

Until recently, few arboreta seem to have specialised in collecting Mexican oaks on a larger scale. One of the first to do so, to my knowledge, was Bob Berry, who established the Hackfalls Arboretum in New Zealand and was, I think, the main pioneer in collecting large numbers of these oaks to grow outside Mexico. He acquired his first Mexican oak in 1975 but really got going as a participant in the IDS tour of Mexico in 1981. He then made several further trips in the 1980s. In the benign climate of New Zealand he now has an astonishing array of



Damage as a result of the freeze

photo©James MacEwen

almost mature Mexican oaks, which gives us the clearest indication of what the Chevithorne Arboretum might look like in 10-20 years' time.

The Hillier Gardens at Romsey in Hampshire has also planted a number of these oaks which stretch back to when Harold Hillier himself went to Mexico. They have many semi-mature trees including a record-breaking *Q. rysophylla*.

Finally, Mr Garin, who runs the Jardin Botanico de Iturraran near San Sebastian in Northern Spain, has collected extensively in Mexico and the countries of Central America and has a comprehensive collection of oaks from this region.



Quercus affinis

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He seems to have been collecting over roughly the same period as us, and has about the same number of Mexican oaks, but interestingly only about 70% of his species are the same as ours.

The Present

In the last two or three years there has been an even more concentrated interest in collecting acorns from Mexico. This is not surprising as it is thought that there are up to 200 species in Mexico, including some which have not yet been identified. We have two oaks that have been renamed this year. These are *Q. delgadoana* S. Valencia, Nixon & L.M. Kelly, and *Q. rysophylla* × *Q. sartorii*, and there are several others which need identification, including one or two which could be new species.

It is not a coincidence that this increase in collecting coincides with Allen Coombes' move to Mexico, and he, Béatrice Chassé, and others have introduced a mass of new Mexican species. One has to admire their tenacity and bravery because a lot of the collecting is in remote places. Much of Béatrice's last expedition, which was so productive, was in North West Mexico near the border with California. This is widely considered to be one of the most dangerous places in North America. Obviously it is too early to tell how these species will deal with the English climate. Germination rates have been fairly good and many of them will be ready to be planted out in the next two or three years. It is difficult to distinguish, at this early stage, which ones will stand out, but there are three which already have exceptionally large leaves and a high growth rate. They are *Q. corrugata* Hook., *Q. oocarpa* Liebm. and *Q. skinneri* Benth. These trees come from a comparatively low altitude so may be marginal in our climate, but if we can establish them, they will be even more dramatic-looking than some of the recent introductions like *Q. rysophylla*, *Q. affinis* and *Q. conspersa*. We have another 51 species of Mexican oaks at Chevithorne. A few are already planted out and the rest are seedlings or small plants which are in the greenhouse or polytunnel. In total over the last 23 years we have had the acorns or seedlings of about 125 Mexican oaks at Chevithorne. Around 20 of them have failed for various reasons. Ten of them failed to germinate and another ten died, mostly at the seedling stage. One, *Q. sapotifolia* Liebm., came to us in 1997 and always struggled with our climate; it was finally killed last winter. I hope and expect to be able to report that in a few years' time a further batch of Mexican oaks will have adapted to the English climate.



Quercus acherdophylla

photo©James MacEwen

The Future

In summary it might be reasonable to suggest that over the next 20 years a large number of these Mexican oaks will find their way into collections and gardens in this country and large parts of Europe, and into the better collections in the southern hemisphere (for example, in Argentina and Australia). In fact this process has already started as we have given spare Mexican seedlings to around 50 oak enthusiasts who will be trying to grow them from the North of Scotland to the South of France and, of course, other collectors will be doing the same thing. These oaks are so varied, and many of them are turning into such interesting trees, that they may well alter the general perception of oaks. Those of us who have been involved in the dramatic expansion of introductions of Mexican oaks have been very fortunate

My Book and Website

I published a book in 2009 called *The Oaks of Chevithorne Barton*, published by Adelphi Publishers. Our new website is www.oaksofchevithornebarton.com



Quercus.acutifolia

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