

The Oaks of Cyprus



Seminar contribution to the module "Terrestrial Ecosystems" (2101-230)
Institute of Botany (210a) · University of Hohenheim · Stuttgart
presented by Leland Gehlen on January 16, 2019

Structure

Climate and vegetation

Phylogeny

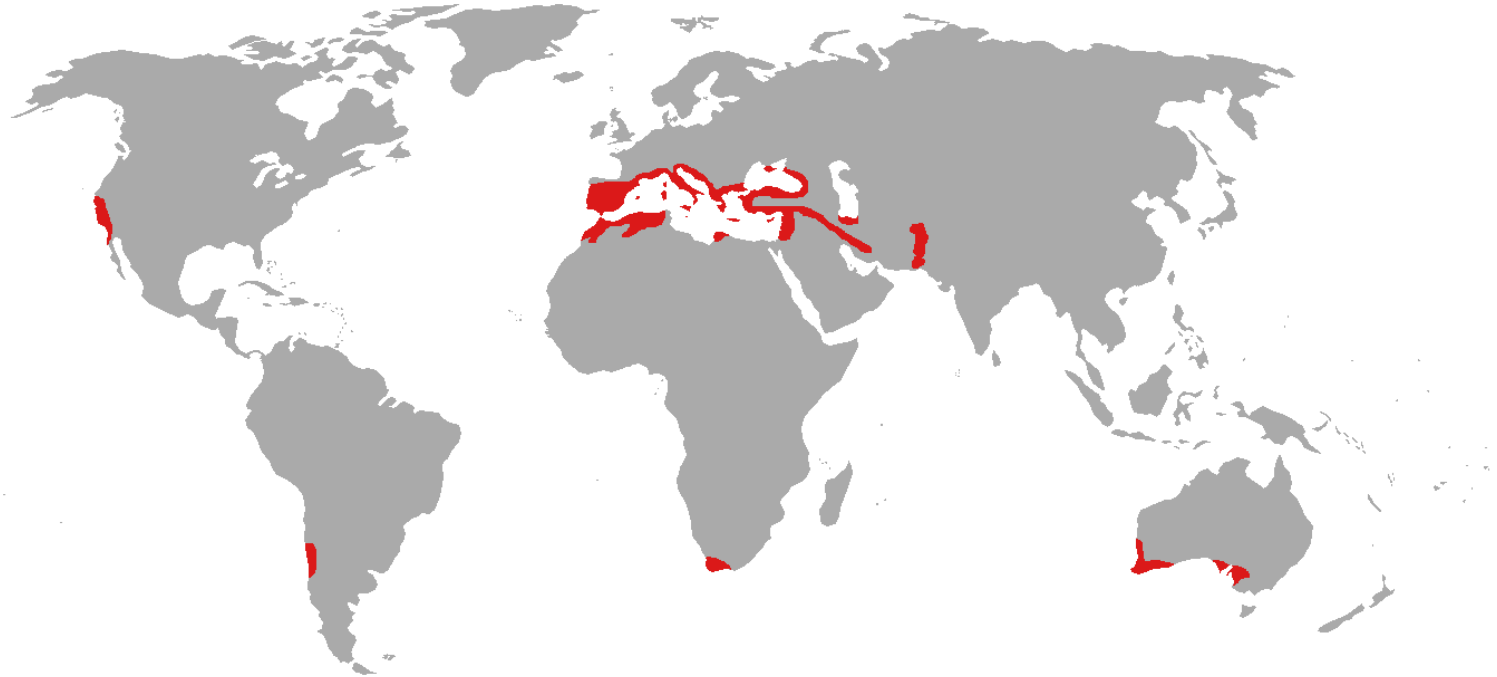
Species

Golden oak

Aleppo oak

Palestine oak

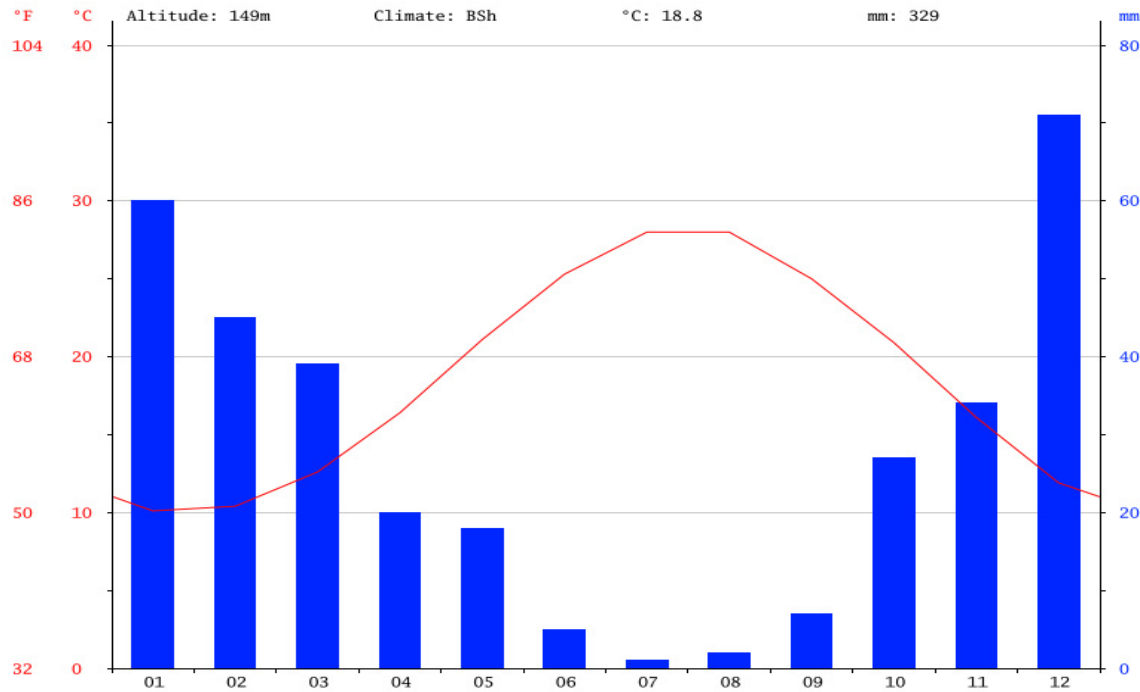
Subtropical climate



Subtropical climate regions marked in red [2].

There are five distinct regions in which we find subtropical climate conditions. By far the largest of these regions is situated in and around the Mediterranean Sea.

Climate



Weather diagram for Nikosia, Cyprus [3].

These regions are characterized as having warm and rainy winters and hot and dry summers. Throughout the year one can expect it to rain between 300 and 1000 mm. So it is not that these regions have little rain but rather that the rain doesn't fall consistently throughout the year. That really sets these regions apart from more temperate climates where there aren't any dry seasons.

Vegetation

Due to the drought plants have evolved structures to survive the summers. Most noticeably are the leathery, wax covered leaves. One can also see that the stomata are sunk into the lower epidermis. Kind of like an innie belly button. All to prevent transpiration and consequently the loss of water.

The Mediterranean subtropical climate region used to be home to vast evergreen forests. With the arrival of humans in this part of the world the land was cultivated and the forests disappeared. Now only 60-30 % of these forests remain.

Phylogeny

Clade: Angiosperms

Order: Fagales

Family: Fagaceae

Genus: *Quercus*

Section: *Cerris*

All species of oak which can be found in Cyprus belong to the section "*Cerris*". One feature of this group is that on the inner side of the acorns shell there are no or only a few hairs.

Golden oak



Distribution of *Quercus alnifolia* in Cyprus. Red line indicates distribution borders [4].

The Golden Oak *Quercus alnifolia* Poech is one of the species of oaks which can be found on Cyprus. It is endemic to the island and can only be found in the Troodos mountains between an elevation of 700 to 1500 m a.s.l.. It prefers humid conditions which is a reason why it can't be found in drier northern mountain range.

Golden oak



Quercus alnifolia as a shrub [5].



Quercus alnifolia as a tree [6].

Quercus alnifolia is evergreen and either grows as a shrub or a tree. It can reach heights of about 10 m. It is often found among *Pinus brutia*.

Golden oak



Quercus alnifolia leaves and branches [7].

The Golden oaks name derives from the tiny golden hairs on the underside of each leaf.

Golden oak



Quercus alnifolia leaves [8].



Alnus incana leaf [9].

The German name for *Quercus alnifolia* is alder-like oak which is also due to the leaves. One can see a similarity between the golden oak and the grey alder *Alnus incana* L. when looking at the outline.

Golden oak



Quercus alnifolia leaves and acorns [10].

The acorns of *Quercus alnifolia* are long and the cupule has characteristic curved scales. These two features make this plant easily distinguishably from the other oaks found on the island.

Aleppo Oak



Distribution of *Quercus infectoria veneris* in Cyprus. Red line indicates distribution borders [11].

The Aleppo oak prefers mountain ranges and can be found up to 1400 m a.s.l.. However, it can also be found at sea level which sets it apart from the Golden oak.

Aleppo Oak



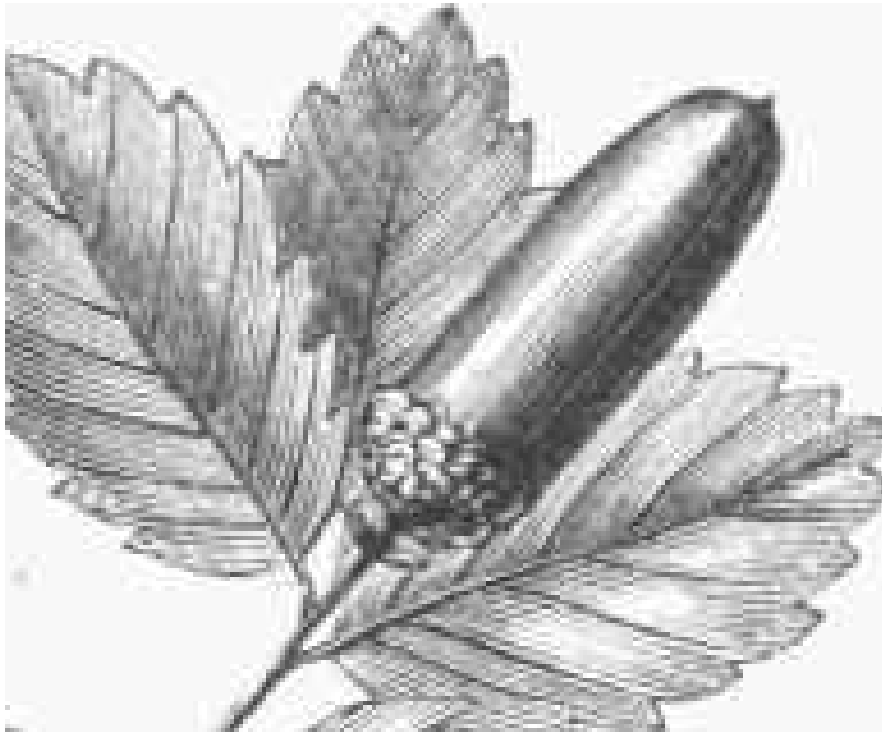
Leaves of *Quercus infectoria* [12].



Leaves of *Quercus infectoria* with galls [13].

Although it can grow as a shrub the *Quercus infectoria veneris* usually grows as a tree up to 10 m high. The subspecies is not endemic to the island and can also be found in the middle east. The galls (fig. 14) which contain high levels of tannin are used for tanning leather. It is the only oak on Cyprus which is deciduous meaning that it loses its leaves annually.

Aleppo Oak



Drawing of fruit and leaves of *Quercus infectoria* [14] .

The fruit of *Quercus infectoria veneris* is variable. It is compared to the fruit of *Quercus alnifolia* often longer and the cupule does not have the curved scales.

Palestine oak



Distribution of *Quercus coccifera calliprinos* in Cyprus. Red line indicates distribution borders [15].

Like the Aleppo oak the Palestine oak is found between sea level and 1400 m. However, it does not prefer mountain ranges and can therefore be found almost on the entire island.

Palestine oak



Quercus coccifera calliprinos as a shrub [16].

The Palestine oak is a evergreen plant which can grow as a tree up to 10m high. More commonly it grows as a shrub reaching about 1-6m in height. Often in maquis or garrigue as a bush.

Palestine oak



Quercus coccifera fruit[17].



Quercus coccifera leaves [18].

The fruit and the leaves of *Quercus coccifera calliprinos* are easily recognized and can hardly be mistaken for another oak found on cyprus.

Palestine oak



Kermes ilicis (Linné, 1758) on its host plant *Quercus ilex* L. [19].

There are many herbivores feeding on the Palestine oak. The most famous one is the scale insect *Kermes vermilio* (Planchon, 1864) which were used to produce the red dye known as Kermes.

Like *Quercus infectoria veneris* *Quercus coccifera calliprinos* has galls which were used for tanning.

References

Bärtels, A. (2003): Pflanzen des Mittelmeerraumes. – Stuttgart.

Düll, R. & I. Düll (2007): Taschenlexikon der Mittelmeerflora. – Wiebelsheim.

Frey, W. & R. Lösch (1998): Lehrbuch der Geobotanik: Pflanze und Vegetation in Zeit und Raum. – Stuttgart.

Lüder, R. (2015): Grundkurs Pflanzenbestimmung. – Wiebelsheim, 7. Aufl.

Meikle, R. D. (1985) : Flora of Cyprus, vol. 2. – Kew (UK).

Primke, A. (2017): Die Eichen der Insel Zypern. – Seminararbeit, Universität Hohenheim, Stuttgart.

Schultz, J. (2016): Die Ökozonen der Erde. – Stuttgart, 5. Aufl.

Schmidt, W. (1999): Gehölze für mediterrane Gärten. – Stuttgart.

Specht, R. L. (1988): Mediterranean-type ecosystems. – Dordrecht (NL).

Viney, D. E. (1994): An illustrated flora of North Cyprus. – Königstein.

https://de.wikipedia.org/wiki/Erlenbl%C3%A4ttrige_Eiche. 12/13/2018.

https://en.wikipedia.org/wiki/Quercus_infectoria. 12/13/2018.

<https://de.wikipedia.org/wiki/Kermes-Eiche>. 12/13/2018.

https://en.wikipedia.org/wiki/List_of_Quercus_species#Section_Cerris. 12/13/2018.

https://en.wikipedia.org/wiki/List_of_Quercus_species#Section_Cerris. 01/14/2019.

Illustrations

- [1],[10] Chneophytou in: https://de.wikipedia.org/wiki/Erlenbl%C3%A4ttrige_Eiche#/media/File:Leaves_acorns_golden_oak1.JPG. Request 01/14/2019.
- [2] Maphobbyist in: https://commons.wikimedia.org/wiki/Category:Subtropical_climate#/media/File:Subtropical.png. Request 12/11/2018. Changed according to Schultz.
- [3] Alexander Merkel in: <https://de.climate-data.org/asien/zypern/nikosia/nikosia-715118/#climate-graph>. Request 02/16/19.
- [4],[11],[15] https://commons.wikimedia.org/wiki/File:Cyprus_Irg.jpg. Request 12/11/2018. Changed according to Meikle.
- [5] Chneophytou in: https://de.wikipedia.org/wiki/Datei:Golden_oak2.JPG. Request 01/14/2019.
- [6] Chneophytou in: https://de.wikipedia.org/wiki/Erlenbl%C3%A4ttrige_Eiche#/media/File:Golden_oak.JPG. Request 01/14/2019.
- [7] <https://de.wikipedia.org/wiki/Datei:Leavesgoldenoak1.JPG>. Request 01/14/2019.
- [8] Chneophytou in: https://de.wikipedia.org/wiki/Erlenbl%C3%A4ttrige_Eiche#/media/File:Leavesgoldenoak2.JPG. Request 01/15/2019.
- [9] Vassil in: https://de.wikipedia.org/wiki/Grau-Erle#/media/File:Alnus_incana_010701.jpg. Request 01/15/2019.
- [12] GideonPisanty in: https://en.wikipedia.org/wiki/File:Quercus_boissieri_galls_2.JPG. Request 01/15/2019.
- [13] GideonPisanty in: https://en.wikipedia.org/wiki/Quercus_infectoria#/media/File:Quercus_boissieri_galls_3.JPG. Request 01/15/2019.
- [14] GeorgeRipley, CharlesDana in: https://en.wikipedia.org/wiki/Quercus_infectoria#/media/File:Quercus_infectoria.jpg. Request 01/15/2019.
- [16] GideonPisanty in: https://en.wikipedia.org/wiki/Quercus_calliprinos#/media/File:Quercus_calliprinos_tree_1.JPG. Request 01/15/2019.
- [17] Koppi2 in: https://de.wikipedia.org/wiki/Kermes-Eiche#/media/File:Steineiche_Fruechte.jpg. Request 01/15/2019.
- [18] HansHillewart in: [https://de.wikipedia.org/wiki/Kermes-Eiche#/media/File:Quercus_coccifera_\(leaves\).jpg](https://de.wikipedia.org/wiki/Kermes-Eiche#/media/File:Quercus_coccifera_(leaves).jpg). Request 01/15/2019.
- [19] BernardDupont in: [https://de.wikipedia.org/wiki/Datei:Scale_Insects_\(Kermes_ilicis\)_on_Holm_Oak_\(Kercus_ilix\)__\(20164637762\).jpg](https://de.wikipedia.org/wiki/Datei:Scale_Insects_(Kermes_ilicis)_on_Holm_Oak_(Kercus_ilix)__(20164637762).jpg). Request 01/15/2019.