



International Oaks

The Journal of the International Oak Society

Proceedings
 10th International Oak Society Conference
 August 30 – September 2, 2022



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Photos, drawings. Cover: Ryder Russell (*Quercus hypoleucooides*); David More (*Q. ajoensis*, *Q. graciliformis*, *Q. gravesii*, *Q. palmeri*, *Q. rugosa*). Page 8: Valérie de Brem. Page 9: Dirk Benoit. Page 10: Guy Sternberg. Page 11: Roderick Cameron. Page 13: Amy Byrne.

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The subject of Min Deng's oral presentation on the sexual reproduction processes in oaks was published in *International Oaks*, Issue No. 33, pp. 63-72.

Papers of the following oral presentations were not submitted for these Proceedings:

1. An Introduction to the Chihuahuan Desert and Its Oak Diversity by Adam Black and Michael Eason;
2. Species Diversity and Conservation Plan for Oaks in Laos by Phetlasy Souladeth;
3. Patterns of Adaptive and Neutral Genetic Population Structure in Two Hybridizing Californian White Oaks (*Quercus* sect. *Quercus*) by Scott O'Donnell;
4. US Navy's 20-year *Quercus tomentella* Restoration Program on San Clemente Island by Julie Lambert;
5. Taking to the Streets: Program and Technique to Bring Periodic and Summer Drought Native and Adapted Oaks into Standard Use by Sean Hogan;
6. Quantifying Exposure to Introgressive Hybridization and Its Potential Conservation Consequences: the Oak Syngameon as a Case Study by Chuck Cannon.



Israeli Oaks: a Contemporary Portal to Ancient Knowledge

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ABSTRACT

In the center of the Israeli forest are oaks. With their impressive height and thick branches, they raise a wide dome above the forest floor that produces protection from heat and drought, providing food, protection, and desirable living conditions for animals, plants, fungi, and humans. For ages and ages, oaks have been key elements of the local ecosystem and the most important trees in local mythologies. Yet, Israeli oaks have suffered from overcutting and overgrazing, and the local landscape has become increasingly arid throughout history. This process has undergone recent change as cutting has been stopped in some areas and grazing minimized.

I believe we must internalize that oaks carry the knowledge of harmonizing life and ecosystems. The present age requires us to listen to the trees and understand that their resilience is our resilience. In this paper I discuss the Israeli oaks and their place in our interactions with the environment to offer a holistic perspective on our relationship with nature.

Keywords: *Quercus calliprinos*, *Q. ithaburensis*

In the ruins of lost villages

The ruins of Tzonam are an archaeological site covering 15 dunams¹ in Western Galilee, in northern Israel. Remains from the Roman period were discovered on the site, but the main finds are from the Byzantine period and include arches still standing on stilts, reservoirs, cisterns, carved columns, and tombs. There are also the remains of a mosque from the Mamluk period, covered by trees. North of the hill on which the Tzonam ruins lie there is another Byzantine relic, the Dur ruins, which contains several impressive sarcophagi. While the hills on which the Roman and Byzantine ruins are located have been abandoned for generations, the ruins of Iqrit, a village inhabited by Palestinians of the Christian faith who were expelled and their village destroyed during the first Arab-Israeli War in 1948, testify that the site was inhabited for hundreds or thousands of years.

As in other areas in Galilee, the local forest has recently benefited from reduced grazing and an end to felling the trees. A thick forest of *Quercus calliprinos* (common oak), *Q. infectoria* (Aleppo oak), and *Laurus nobilis* (bay) grows between the remains and the hewn stones. The local oak forest has renewed its hold on Earth.

The tree of life

The importance of oaks, both locally and internationally, stems from their ecological importance. (Tallamy 2021; McShea and Healy 2002). While the literature largely refers to oaks in North America and Europe, the importance of oaks in Israeli ecosystems is similar. Oak trees and their acorns are the center of extensive interactions with birds, mice and other rodents, wild boar, deer, and elk. Oak leaves are also eaten by many



Photo 1/ *Quercus calliprinos* grove in springtime (central Israel).

1. A measure of land area used in parts of the former Turkish Empire, that included what is now Israel, equal to about 900 m².

animals, including sheep, goats, deer, and various types of rodents. The layer of humus created by leaf decay nourishes insects, fungi, and other organisms while the roots play a key role in the web of life found in the soil in which they grow. Oak bark, rich in strong acid, feeds more reptiles than any other tree, and many insect species use it for the same purpose. Oak bark also provides habitat for many plants, mosses, and lichens. I believe that there is a harmony of life centered around oak trees, and though they are not as prosperous today as in the past, oaks continue to be an essential support base in the ecosystems on which we also depend.

The ecological qualities of a great oak do not escape our broad consciousness, and, even if we are not aware of all the phenomena that bind a large tree to the living space around it, few of us are indifferent to the extraordinary character of a venerable oak tree.

Oaks in Israel

There are five native oaks in Israel (Barnea 2022).² The most common is *Q. calliprinos*, an evergreen tree with deep roots, relatively small, bitter acorns, and spiny leaves. It is found in areas with an annual precipitation level of 400 mm or more. This is the dominant tree in central and northern Israel (Galilee, Carmel, and the mountains of Judea). It is also found in other areas in Israel in low-bush formations. Sometimes it forms dense groves in the company of *Pistacia palaestina* and generally does not exceed 10 m in height, although some trees are much taller.

The largest and most impressive of Israel's oaks is *Q. ithaburensis* (Tabor oak), a deciduous tree with rough, thick bark and very large, sweet acorns. *Quercus ithaburensis* can grow to heights of 20 m, developing thick and sculpted trunks, and is found in areas with an annual precipitation level of 250 mm or more with relatively low bromide. The roots have the ability to hug chalk rocks in pockets of soil that provide them with moisture in the dry season, allowing them to cope with a lack of rainfall (Har et al. 2016). *Quercus ithaburensis* is a component of woodlands where trees are spaced apart forming groves, sometimes in the company of *P. atlantica*.

Quercus ithaburensis can live to be 500 years old and *Q. calliprinos* 850, though most found in Israel today are much younger. In the past, *Q. ithaburensis* forests covered large areas of the country, from the center to the north, and from the south of the Sharon Plain to the Galilee and the Ha-Hula Valley. Over time, the forests have shrunk massively as land was cleared for grazing, farming, human habitation, and industry.

Most of the mature oaks that survived the felling were preserved for reasons of sanctity or thanks to being in the territory of a village that protected them. A few of these "survivor" trees are scattered in the center and in the north of the country, including the Chadak family's *Q. ithaburensis* (in central Israel, between Al Tira and Tayibe), with its huge, hollow trunk, about 7 m in circumference as well as a gigantic *Q. ithaburensis* found in Sheikh Mahfi in northern Israel, with a circumference close to 6 m and a canopy diameter of 28 m (IOR 2022).

Climate change has made life difficult for Israel's pine trees, the planting of which began during the British Mandate for Palestine (1923-948) and continued thereafter.

2. The number of oak taxa indigenous to Israel is a subject of debate, if only because what names are to be used is also a subject of debate. For example, for some authors *Quercus calliprinos* is a synonym of *Q. coccifera* (KEW POWO) while for others *Q. coccifera* subsp. *calliprinos* is a valid name (www.oaknames.org). Similarly, for KEW, *Q. coccifera* subsp. *palaestina* is a synonym of *Q. coccifera*, but in www.oaknames.org, it is a valid name.

Little by little, oaks are finding their way back as dominant figures in the landscape. In many areas of the country, you can see renewed, natural growth of local oaks, returning slowly to reclaim their hold on the land.

In the last decades, the Israeli forest has recovered remarkably, and the oak tree is at its center. While a similar recovery is described in various places around the Mediterranean basin (Bergmeier et al. 2022), in Israel the phenomenon is surprising in its strength. Since the beginning of the 20th century, when local nature reserves began to be created, sheep and cattle grazing, which had been going on for thousands of years, was reduced and the forests began to recover, in some places thickening into a dense and impenetrable



Photo 2/ *Quercus ithaburensis* in Baraam, north Israel.

thicket. The area now covered by the Galilee Forest is extremely impressive compared to that in the mountains of South Lebanon, which have similar land and weather conditions. Recently, I visited the area, and local inhabitants claim that they have not seen such growth rates until very recently.

Israeli oaks are tough trees, highly resistant to fire and drought. Their roots are a part of the ecological past along with the rocks and the soil of the region. Agricultural settlement

in what is today Israel is ancient, and the forests reflect a hybrid ecology with agriculture and grazing. There has been construction and destruction, drought and fire, felling of forests and replanting of them. Humans and oaks share a common heritage in the design and organization of space, both the natural and the cultural.

Those who know the oak

The imposing physical presence of oaks, their importance in natural ecosystems, their role as a major source of raw materials for the technologies on which civilizations were based shaped their central place in local mysticisms – not only in Israel (Amotz 2010). In many places where large oaks were present, they became a central pillar of the spiritual traditions that were preserved in the transition from gathering to agriculture and have persisted throughout most of history (Logan 2006).

In European mythologies, oaks were associated with the chief gods (e.g., Zeus, Jupiter, Degda, Peron, Thor, etc.). Roman soldiers wore a crown of oak leaves, and all over Europe, from Greece and Rome to England and Scotland, stories and legends associated with oaks praise their strength, vitality, and mystical power. Particularly famous are the Celtic druids. Most scholars agree that the second part of the word, “id” comes from the root “weid” which means “to know”. The first part of the word is a subject of debate with some scholars arguing that it means “hard, like oak” and others, “dependable or faithful”. It is possible therefore, that the word “druid” means “those who know the oak”.

In Hebrew, the word that designates oak (אֵילָן) includes the root word for god (אֱלֹהִים), as does the word for pistachio (אֵילָן), another very important tree in Israel. In the Bible the oak is the most commonly cited tree. Hebrew orthography uses a system of diacritical

signs to distinguish between alternative pronunciations of letters, that result in different meanings. Depending on which ones are used, the word refers either to the tree itself, forests, or ceremonies of which oak trees are a part.

Along with the importance of oaks in ancient Hebraic mysticism was the worship of Asherah, the Sumerian mother goddess. The Babylonian exile of the Hebrews (585 BC) marked the beginning of monotheism and the consequent destruction of ancient polytheistic shrines and rituals, such as those devoted to Asherah, often related to nature. With time, as monotheism supplanted all other beliefs, Jewish religious law neglected sacred trees and their spiritual importance.

The kingpin of Tzonam

In the small wadi between the ruins of Tzonam and Dur, the forest opens into clearings, revealing a giant *Q. calliprinos*. The tree is one of the largest oaks in Israel, a veritable king of the forest – wide and tall, its trunk is about a meter in diameter and its top is about 25 meters across. It has no signs of major disease or trauma and is free of human damage.

The sight is rare. The largest Israeli oaks are those *Q. ithaburensis* that have survived thanks to their proximity to a tomb or ritual site. This huge *Q. calliprinos* is unusual, and it is easy to imagine the initiating role it had in the restoration of the local evergreen forest of the Tzonam ruins. Its huge branches spread out to the sides, while its trunk rises straight upwards, as if it knew that its role is to show the forest its way.

Conclusion

The remains of the lost villages of Western Galilee are covered with the two plants whose woven leaves crowned Roman emperors: laurel and oak. The forests have suffered, but their force lingers, quietly, patiently. When they have space, they return, stable and determined, filling the Earth with life, preparing it for restoration.

When we come to face the challenges of tomorrow, we must look at trees to stabilize our world. Our ability to face tomorrow stems from our ability to protect these pillars of life today. Since our ability to understand the natural world is



Photo 3/ The kingpin of Tzonam (*Quercus calliprinos*).

limited, we must consider an alternative approach: understand that what is good for oaks is probably good for us, and therefore it behooves us to listen to them.

Photographers. Title page: Amit Raphael Zoran (*Quercus ithaburensis* in Ein-Kafarin). Photos 1-3: Amit Raphael Zoran.

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