International Oak Society

Oak News & Notes

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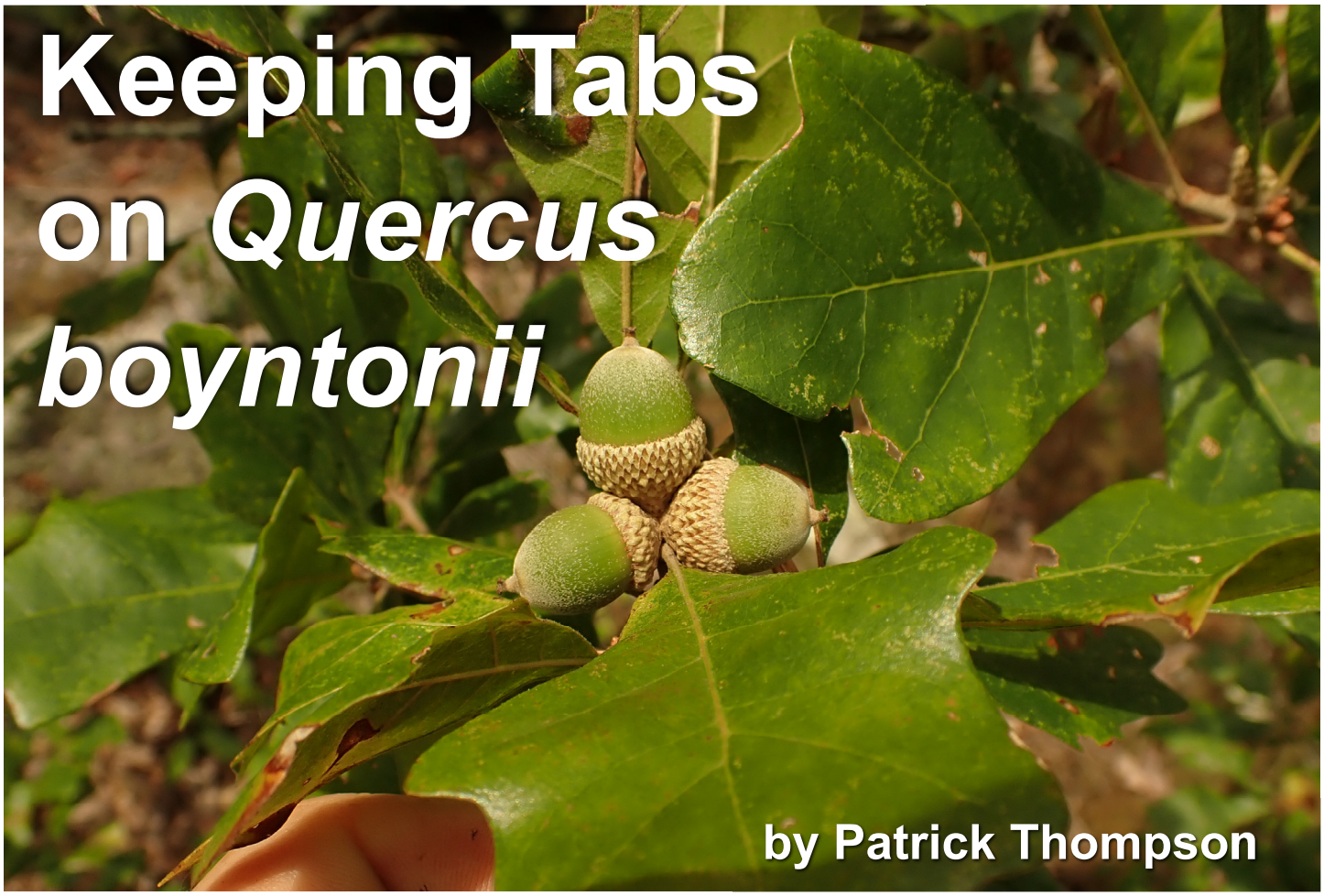


Keeping Tabs on *Quercus boyntonii*

by Patrick Thompson

Through much of 2020, conservation horticulturists teamed up to collect and document one of the world's rarest species of oaks, *Quercus boyntonii*, the Alabama sandstone oak. The species is known to be extant in six counties in central and northeastern Alabama (USA), and is listed as Critically Endangered by the International Union for the Conservation of Nature. The effort was led by Tracy Cook, Director of the Department of Conservation at the Huntsville Botanical Garden. Her primary collaborator on the expedition was Patrick Thompson, Curator at Auburn University's Davis Arboretum and Coordinator of the Alabama Plant Conservation Alliance (APCA). The effort was made possible by a Tree Gene Conservation grant funded by the Association of Public Gardens of America and the US Forest Service. The APCA had spent years developing landowner contacts and working to increase awareness surrounding this cryptic species of dwarf oak, generating many leads for the team to pursue in their effort to find trees with enough acorns to collect for preservation in living collections.

Due to the fact that the entire wild population of the species was reported to be only a few hundred individuals, from perhaps 10 elemental occurrences, the team decided to collect more than 30 fields of data on every individual *Q. boyntonii* they were able to locate. The idea was that a detailed snapshot of the spe-

cies would provide important baseline information to build on as the team works to illuminate the natural history and basic biology of this little-known Alabama endemic plant. The team began by evaluating outlying occurrences at the southern extent of the range. Plants discovered by the APCA in Autauga County, if verified, will be a new county record for the species, expanding its known range to seven Alabama counties. Proceeding north, the team was able to locate several heavily fruited individuals along the ridge of Double Oak Mountain in Shelby County, on a mixture of state and private lands.

The heart of the range of *Q. boyntonii* is in Birmingham, the largest city in the state of Alabama. There is a thriving subpopulation to the south that was well documented by this effort, and two, perhaps three, viable populations north of Birmingham have been recognized. The city and its outlying towns and suburbs have spread across what could have been the densest parts of the species gene pool, suggesting that the development of Birmingham is the primary reason that the species is critically endangered. This project was able to document five remnant populations within the Birmingham area previously unknown to the Alabama Natural Heritage Program. Unfortunately none of these plants produced enough acorns to collect this year.

An outlying occurrence north of Birmingham on the Cumberland Plateau ended up having a surprising amount of *Q. boyntonii*, nearly 70 plants observed in just a few hours of walking the privately owned property. The landowners were enthused and look forward to having the team return for a full census of the site. Though there were some exposed rocks, many of the trees were found on sloping, grassy, savannah-like habitat where they extended right down into the flood zone of the Black Warrior River. The team was able to count 496 specimens, leaving approximately 1/3 of the known range to be surveyed in future census efforts. There were 667 acorns collected from 17 maternal lines, which were distributed to 11 public gardens in the Eastern US.

The team also mapped and photographed a series of presumed hybrids that occur with *Q. boyntonii* and *Q. margarettae, Q. montana, Q. stellata*, and *Q. alba*. The completion of the survey and germplasm collection will hopefully take place in 2022. The completion of the survey work will allow for analysis of the frequency of growth forms and for a truer understanding of the number of occurrences and the total population of the species. Details of the project available here: bit.ly/boyntonii

Book Review

Keiko Tokunaga Illustrates Fagaceae

by Shaun Haddock

When my copy of Keiko Tokunaga's recently published book arrived, my first reaction was of great regret that I am unable to read Japanese (the book is in Japanese, but with indexed Latin species names, so you are never lost). However, such regret was immediately forgotten, as the book is a visual feast! The subtitle reads "Beech, Oak and Chestnut," but whilst there are five species of beech (*Fagus*) and two of chestnut (*Castanea*) within the book—and, don't worry, many, many oaks, considerably outnumbering all the rest!—the subtitle conceals that there are marvelous studies of genera which have no widely known English common names: such as 26 species of *Lithocarpus* showing the amazing variety of "cupules" in the genus, sometimes compounded to form thick defensive armor; 11 species of *Castanopsis*, where instead spiky cupules can go on the offensive; not to mention *Chrysolepis, Nothofagus, Notholithocarpus,* and *Trigonobalanus*. The latter genus is in this book split into three genera of one species each: *Trigonobalanus verticillata* and two genera usually considered synonymous with *Trigonobalanus,* namely *Colombobalanus* (*excelsa)* and *Formanodendron (doichangensis)*, the latter once placed in *Quer-*

Illustrated Flora of Fagaceae Trees of the World
Keiko Tokunaga, Heibonsha, 2020, 191 pages

***Trigonobalanus excelsa* (syn. *Colombobalanus excelsa*) spills over the page, despite insect damage**

cus by oak monographer Aimée Camus, and all three being tropical or subtropical trees which I imagine many of us, me certainly included, have never seen. Dr. Hara Masatoshi, an expert on the Fagaceae based at the Natural History Museum in Chiba, Japan, has provided species descriptions and some general text; Keiko has added notes relating to her own observations and experience, and of course all the paintings are hers.

The IOS has now covered Keiko's work twice on the website, firstly with 'Why I Draw Oaks' (bit.ly/whyoaks), and then this book (bit.ly/my-second-book). As those web articles reveal, the illustrations are a labor of love for Keiko, as it takes two to three weeks to paint just one species, and her endeavors are necessarily limited to the fruiting season; they explain also how much traveling she has done with her husband Susumu in pursuit of her goals (by my count they have visited 21 countries in addition to Japan!). Thus it is no surprise that 16 years elapsed between her first book and this one. You can see sample spreads from the recent book in the web post linked above, included amongst which are a special feature of many of the illustrations: that of the iceberg-like root-to-shoot ratio of seedlings of many species. I don't think I have ever seen this shown elsewhere, and in the book sometimes three stages of a seedling's development are intricately displayed. You can see examples of these roots on the paintings of *Quercus alnifolia* and *Chrysolepis chrysophylla* var. *minor*; on the second one, *Trigonobalanus* (*Colombobalanus*) *excelsa,* complete with insect damage, humorously spills over the page divide! Also seen in the web article is *Castanopsis paucispina* from Borneo, but in the book itself there are additional illustrations of this species, including photographs of a mature tree and also a seed in the hand which shows more clearly the impressive size of the fruit.

To move to species not shown in the web article, I had previously noted with disappointment that when the multi-volume photographic guide 'Woody Plants of Japan' was compiled, the publishers were evidently unable to find an illustration of the acorns of the rare *Q. hondae*. Step up Keiko: that lack is now rectified by her book, and she also managed to track down acorns of the subtropical Japanese endemic *Q. miyagii*, something we signally failed to do on the IOS tour of Japan in 2007 (see bit.ly/Japan2007). She also includes the little-known *Q. serrata* subsp. *mongolicoides*, with its curious acorns which have an almost square side profile. Professor Hideaki Ohba intimated during our tour that it might in due course attain species rank (it looks like a *mongolica*-series oak, but is genetically closer to *Q. serrata*), and promotion finally came in 2017: *Q. mongolicoides* (H. Ohba) Hiroki. Every Japanese species is of course illustrated, but beyond that Keiko has been free to choose a fascinating cross section of the family Fagaceae, and she goes in relentless pursuit of those species chosen. The book is divided into three sections: Asia, Europe (including Asian Turkey), and the Americas. For me personally, the Asian section is the most captivating, because not only is the material illustrated extremely varied, but also largely unfamiliar to most of us in Europe and the Americas.

Unfortunately, there is no immediate prospect of the book being published in English (although perhaps in Chinese), but I am delighted to have it on my bookshelf both for the beauty of the illustrations and the introduction to plants I have never seen before. Should you wish to purchase a copy, please contact Keiko directly (kacorn@jcom.home.ne.jp).

Covid-19 has at present curtailed Keiko's travels, but let us hope that once the pandemic is over it will take less than 16 years before book number three is published!

Cultivar Close-Up

Quercus 'New Madrid': Sorting Out the Confusion

by Ryan Russell

There seems to be a good deal of confusion regarding the cultivar published as *Quercus texana* 'New Madrid' in 2007 by Eike Jablonski, and there are a number of reasons why that confusion exists. So, let's start at the beginning.

In 1999, past IOS President Guy Sternberg discovered a mature Nuttall oak (*Q. texana*) in southern Missouri's New Madrid County[1] (for readers outside the US, it is worth pointing out that the pronunciation is MAD-rid, not Ma-DRID like the capital of Spain). Seed collected from this tree was grown at Starhill Forest Arboretum, Petersburg, Illinois; from a handful of individuals Guy selected his favorite plant, which was registered as 'New Madrid'. This excellent cultivar features a wine/purple spring flush, red fall color, and has a uniform pyramidal crown. Around the same time, Guy sent scions of this selection to Dirk Benoit at Pavia Nursery, Belgium for propagation. This selection ended up in other European nurseries as well as Forrest Keeling Nursery in Elsberry, Missouri. These vegetatively propagated (grafted) trees are the only true forms of the cultivar 'New Madrid'.

What seems to be contributing to the confusion is the fact that seedlings originating from the parent tree produce quite uniform plants with very similar features to the cultivar. However, these are siblings, not to be confused with the named cultivar. A new selection from one of these seedlings would need a new name if it were to be reproduced (vegetatively) in the future. Complicating matters further is the fact that seed has been distributed in Europe and the US, and may have been erroneously labeled and even marketed as the cultivar 'New Madrid'.

***Quercus* 'New Madrid' acorns showing intermediate characteristics © Ryan Russell**

[1] See Russell, R. 2013. The Unique Nuttall Oak Tree at New Madrid, Missouri. *International Oaks* 23: 50–55

The downward arching lower limbs of *Quercus* 'New Madrid' showing influence of *Q. palustris* © Guy Sternberg

One further complication to this puzzle: Although originally registered as a Nuttall oak cultivar, Mr. Sternberg has had suspicions for some time that this selection might in fact be an F1 hybrid. Quick growth rate, atypical foliage, increased hardiness, and branching habit all hinted at hybrid parentage. In 2017, the original F1 seedling registered as 'New Madrid' flowered and set seed for the first time. It was the last piece of the puzzle that made it clear this cultivar was in fact a hybrid with *Q. palustris*. The intermediate cups and acorns (thin, shallow cups and short, rounded acorns like pin oak), along with the other characteristics, make it quite clear. Records should be amended to reflect this change. *Quercus* 'New Madrid' or *Q. palustris* × *texana* 'New Madrid' is now the correct way to list this cultivar as no official epithet exists to recognize this hybrid.

A New Madrid Group was proposed to provide a name for all of the sibling plants that exist in Europe and the US. However, New Madrid cannot be used for both a Group and a cultivar and it seems best to retain it for the cultivar. In addition, there are now several selections or hybrids of Nuttall oak that have a red spring flush. A new Group name that would include all of these selections has been proposed and

will soon be published.[2] While it is certainly possible that some of the seedlings from the original tree in New Madrid are pure Nuttall oak, the majority of those raised at Starhill Forest and by the author appear to be F1 hybrids.

Two Oaks in the Running for European Tree of the Year 2021

by Roderick Cameron

Voting for the European Tree of Year 2021 competition is taking place in February and closes on the last day of the month. Fourteen trees have been nominated by the countries participating in the event, having won their respective national competitions. Several genera are in the final round, including *Quercus*, with two candidates.

Representing Slovakia is an oak from Drnava, a village near Rožňava, in the Košice region. The ancient *Quercus robur* is located in the former premises of the iron and steel works of Count Andrássy, where components of the famous Széchenyi Chain Bridge in Budapest were produced in the 1840s. This earned the village the nickname of "Kis Pest" (Little Pest). Today this ancient oak is one of the stops on the educational trail "Treasures of Drnava" that goes through the village, reminding visitors of the village's mining history. Standing on an old trading route, the oak tree has been one of the essential symbols of the village for many generations: the first mention of the oak in the village chronicles dates to 1670.

Spain's nominee is a *Q. ilex* in the northeastern region of Aragon. The name of the village where it stands, Lecina, is itself an old name for holm oak in the Aragonese dialect. The tree is known by another local name for *Q. ilex*: *carrasca*. Oaks were of course considered sacred trees in ancient times and that is certainly the case in Aragon, where all kinds of agreements, such as business deals, weddings, land ownership issues or boundaries, are celebrated in the shade of a holm oak. If what was to be agreed upon involved two locations, the largest holm oak located midway between them was chosen. If the matter was of greater relevance, the most famous tree of the region or kingdom was chosen. This legendary tree is included in the coat of arms of Aragon, whose upper left quarter features a holm oak with a red cross above it. According to legend, in the 8th century the Iacetani, an Iberian tribe, had come to the town of Aínsa

The *carrasca* in Lecina is said to have been once part of a dense forest inhabited by witches – Photo: Lecina Council

to reconquer this territory from the Moors. When the Iacetani were losing the battle, a red cross appeared hovering above an oak tree and at that point the fortunes of the battle changed. The Iacetani won the battle and regained Aínsa. The holm oak with its red cross became the symbol of the district of Sobrarbe (the name derives from *sobre árbol*, "above a tree").

The *carrasca* at Lecina also has its own legend. It is said that long ago Lecina was surrounded by impenetrable and mysterious forests of holm oaks, home to wolves and bears—and witches. The villagers feared the witches, who they believed caused diseases and sent terrible storms that ravaged the town. However, the holm oaks in the forest were happy, because the local people were so afraid of the witches that they did not dare enter the forest to make firewood. One of the youngest of the holm oaks was not happy about the forest's bad reputation and she felt sorry for the villagers, so much so that she would not let witches take refuge in her branches.

The Aragonese coat of Arms, with the holm oak and red cross in the upper left quadrant CC BY-SA 3.0

Due to her attitude, disagreements with the other trees were frequent. The witches, who heard the protests about the young holm oak, decided to go to another forest and, as a gesture of gratitude to the older ones for their moral support, they granted each tree a wish. The most presumptuous wanted their branches and leaves to be made of gold, others wished that their leaves should exude delicious perfumes, and the rest requested that their leaves be turned to crystal. Only the small holm oak wanted to continue just the same as she was.

[2] Russell, R., E.J. Jablonski, and A.J. Coombes. 2021, in press. New and Lesser-Known Oak Cultivars 2020. *International Oaks* 32.

The witches granted their wishes. On the third day after the witches left the forest, there was a terrible storm. The crystal leaves all fell to the ground and shattered, causing the demise of those trees. Another day, a shepherd could not prevent his flock from rushing to eat the aromatic leaves, and from then on the inhabitants cut down these oaks to feed the leaves to their livestock. Later the golden trees were torn to pieces by thieves. Of all that impenetrable forest, only our small holm oak remained. It has not stopped growing and today is respected and admired by everyone.

The nomination of an Aragonese holm oak this year is also linked to COVID-19. On June 27, 2020, a region-wide memorial ceremony took place, under the slogan "Aragon, those who are missing". As a tribute to the victims of the COVID-19 pandemic, 731 holm oaks were planted, one in each municipality of the autonomous community of Aragon. The ceremony was a tribute to the victims, but also a symbol of gratitude to health workers and nursing homes, to the State security forces and bodies, to essential services, and to all those who have guaranteed the production and availability of food.

In Zaragoza, the capital city of Aragon, the planting ceremony was held in the Plaza de la Ciudadanía. Following a ceremonial drum roll played on seven drums, each representing a root of the holm oak as depicted on the Aragonese coat of arms, the tree was planted in a spot facing the Palace of La Aljafería, seat of the Aragonese Parliament. The son and granddaughter of the first COVID victim planted the seedling and placed a ceramic plaque that reads: "This holm oak symbolizes the memory that takes root and grows within us, and which we all must help grow."

You can cast your vote for the European Tree of the Year at the website www.treeoftheyear.org. As *Oak News & Notes* goes to press, the *Carrasca de Lecina* is in the lead, but an Italian plane tree (*Platanus orientalis*) is close on its heels. During the last week of voting, votes will be secret and preliminary vote counts will not be available on the webpage. Which tree you vote for is of course a matter of personal choice, but IOS members will be expected to do their duty! The winner will be announced at an Award Ceremony on March 17.

Emory Oak Collaborative Tribal Restoration Initiative

by Nanebah Lyndon, Vincent Randall, and Sara Souther

"To the Apache people, Emory oak, eagles, and otters are an indication of environmental health" (Vincent Randall, Apache Cultural Director of the Dilzhe'e Apache of the Yavapai-Apache Nation). Yet, in recent years, Apache elders have observed that cherished Emory oak (*Quercus emoryi*) stands are yielding fewer acorns, producing fewer seedlings, and declining in overall health. This trend is alarming from both a cultural and an ecological perspective. Emory oak acorns, unlike many oaks endemic to the eastern United States, are low in tannins and require no leaching prior to eating. Rich in nutrients, fats, and protein, Emory oak acorns are a critically important commodity for Western Apache Tribes, as a staple food source and also for use in ceremonies and other traditional cultural practices. In the past, acorn gathering excursions were intergenerational social events that brought families together, and ground acorns were "always on the table, like salt and pepper"[1]. Ecologically, Emory oaks are the dominant canopy species in Madrean woodlands and savannas throughout Arizona. These statuesque trees, characterized by dark black bark, shiny, holly-like leaves, and a canopy like stacked umbrellas, create habitat for native flora and fauna and provide forage for game species, like mule deer and elk.

Emory oak near Young, Arizona © Nanebah Lyndon

The reason for the observed decline of Emory oaks is not fully understood, but is likely linked to overgraz-

[1] Coder, C., V. Randall, E. Smith-Rocha, and R. Hines. 2005. CHI CH' IL (Acorns): Dissolution of Traditional Dilzhe'e Gathering Practice(s) Due to Federal Control of the Landscape. *USDA For. Serv. Proc.* RMRS-P-36 277–281.

ing by cattle, fire suppression, and increasing aridity. To address the question and problem of oak decline, the Forest Service, Northern Arizona University, the San Carlos Apache Tribe, the Tonto Apache Tribe, the White Mountain Apache Tribe, and the Dilzhe'e Apache of the Yavapai-Apache Nation formed an initiative, the Emory Oak Collaborative Tribal Restoration Initiative (EOCTRI, pronounced "E oak tree"). The ultimate goal of this coalition is to unite Traditional Ecological Knowledge (TEK), western science, and land management to ensure the long-term availability of acorns on public land for Western Apache Tribes. Surveys of Emory oak groves in the Coconino and Tonto National Forests began in 2019. These data

Forestry Service Staff discusses Emory oak with Apache Elder Vincent Randall © Nanebah Lyndon

will be used to analyze the effect on Emory oak health of thinning, prescribed burning, and other restoration treatments, scheduled to begin in 2021. Using Forest Inventory and Analysis (FIA), the EOCTRI recently published a manuscript in the journal Forest Ecology and Management[2] that described the status of Emory oak in Arizona and demonstrated that increasing aridity may threaten the long-term viability of this species. Preliminary surveys also identified the *Hypoxylon* canker, a pathogenic fungal disease, in drought-stressed oak populations in southern Arizona. While alarming, these findings provide necessary information to inform restoration strategies.

Restoration treatments currently include hand-thinning with chainsaws or machine mastication to reduce underbrush and encroaching tree species, reintroduction of low intensity fire, exclusion of domesticated herbivores like cattle that tend to trample and consume seedlings and saplings, and planting of Emory oak seeds and seedlings.

Critically, vegetative thinning both removes trees and shrubs that compete with Emory oak, and also decreases the likelihood of catastrophic wildfire. Prior to European settlement of the Southwest, low intensity fires swept through oak systems regularly, excluding species that, unlike oaks, were not adapted to fire. The legacy of 20th century fire suppression is a landscape of woodlands choked with woody vegetation that decreases water and resource availability for oaks and causes fires to burn hotter and higher than in the past, reaching tree canopies and killing even fire-adapted species, like Emory oaks.

Combining the expertise of Apache elders, scientists, and land managers, the EOCTRI will integrate information from project actions to maximize the efficacy and efficiency of restoration treatments. The prescient concern of Tribal Elders, arising from their deep knowledge of this landscape, may rescue this cultural and ecological keystone species to the great benefit of future generations.

[2] Souther, S., N. Lyndon, and D. Randall. 2021. Insights into the restoration and sustainable management of Emory oak: A southwestern cultural keystone species. *For. Ecol. Manage.* 483, 118900.

Conversations with Conservationists

by Editorial Staff

Oaks are in trouble. The recent IUCN Red List Assessment indicates that roughly 41% of all oak species are threatened with extinction. From habitat loss to diseases and invasive species, there is no single factor we can point to that explains the state of oaks across the globe. It is a case of death by a thousand cuts. Needless to say, oaks need our help. However, just as the threats to oaks vary, so too must efforts to conserve them. In the two episodes linked overleaf, Dr. Matt Candeias of *In Defense of Plants* sits down with Dr. Murphy Westwood and Dr. Silvia Alvarez-Clare of The Morton Arboretum to talk about oak conservation efforts. Dr. Westwood outlines a series of oak-assessment projects as well as

***Quercus brandegeei*, the focus of a community-based oak conservation project in Baja California, Mexico © José Luis León de la Luz and CIBNOR**

the need for ex-situ oak conservation in the form of conservation groves for threatened species. Dr. Alvarez-Clare discusses her work on conserving two species of oak in situ, (*Quercus brandegeei* and *Q. insignis*), which involves engaging members of the local communities that depend on them the most. Hopefully, conversations like these will inspire even more oak conservation efforts. After listening, please consider picking up a copy of Matt's new book, *In Defense of Plants: An Exploration into the Wonder of Plants,* wherever books are sold. Follow the links below to access the episodes:

Oaks in Trouble:
A conversation with Dr. Murphy Westwood
bit.ly/murphyw

Community-Based Oak Conservation:
A conversation with Dr. Silvia Alvarez-Clare
bit.ly/silviaa-c

Oak-Themed Platinum Proof Coins

by Editorial Staff

The United States Mint announced last month that it is launching a new five-year Platinum Proof Coin Program series starting in 2021 and continuing through 2025. The series uses the lifecycle of the oak tree from seedling to a mighty oak as a metaphor for the United States' growth as a nation that values freedom. As stated in the Mint's announcement: "Liberty grows to a thing of strength and beauty from a seed—the US Bill of Rights."

Obverse of the 2021 American Eagle Platinum One Ounce Proof Coin, showing a seedling and a acorn

The First Amendment to the United States Constitution Platinum Proof Coin Program will reflect the five freedoms enumerated in the First Amendment to the United States Constitution—that is: "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances."

All obverse designs in this series were created by Artistic Infusion Program (AIP) Designer Donna Weaver and engraved by Chief Engraver Joseph Menna. Each design—one for each year—depicts a moment in the life of an oak that illustrates one of the freedoms referred to in the inscription that surrounds the image.

More information is available on the United States Mint website (www.usmint.gov), where you can also purchase the coins. The first in the series, the 2021 Freedom of Religion coin, went on sale on February 4, 2021. The nominal value of each coin is USD 100, but the cost of buying one is a little more. Be prepared for sticker shock: after all, platinum doesn't grow on trees!

A Propagation Manual for Quercus—in Spanish

by Roderick Cameron

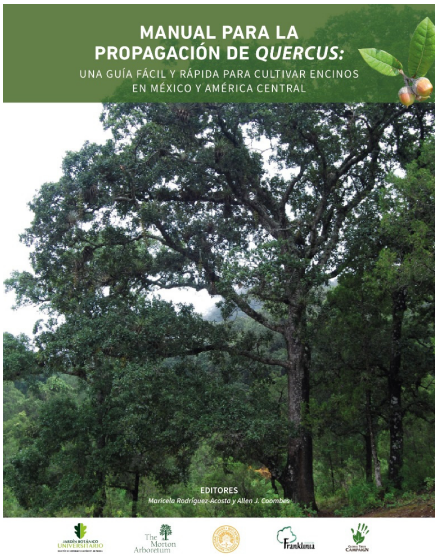
The *Quercus* Propagation Manual published in Spanish last month fills a void. There has long been a need for a Spanish-language introduction to oaks with practical information on how to grow them. Plenty of material on these topics exists, but mostly in English—or French, in the case of the outstanding (though mute on propagation) *Guide illustré des chênes*. The Manual does much more than simply fill the gap; it covers an extensive range of subjects, from the ecological, cultural, and commercial importance of oaks to the latest techniques used in micropropagation. What is particularly satisfying is that the material is written not from the periphery of oak diversity, as is the case with existing Anglo-American or European texts, but from the very center of gravity of the genus, which is more diverse in Mexico and Central America than anywhere else in the world. Whereas we are used to treating *Q. robur* or *Q. petraea* (in Europe) and *Q. alba* or *Q. macrocarpa* (in the US) as the plain-vanilla, widespread species of oaks, in this manual their place is taken by *Q. rugosa*, *Q. crassifolia*, and *Q. polymorpha*.

The publication is edited by IOS members Dr. Maricela Rodríguez-Acosta and Allen Coombes of the Botanic Garden of the Benemérita Universidad Autónoma de Puebla (JBU-BUAP), Mexico; it was made possible by the collaboration and contribution of the Global Trees Conservation Program of The Morton Arboretum, the JBU-BUAP, Botanic Gardens Conservation International, The Global Trees Campaign, and the Franklinia Foundation.

The text is written by some of the leading experts in *Quercus* matters. An introduction by Susana Valencia-Avalos discusses the importance of oaks. In the following chapter she is joined by Allen Coombes and Maricela Rodríguez-Acosta, who emphasize the need to cultivate oaks, especially in Mexico and Central America, detailing the species native to Mexico, their conservation status, and the chief characteristics of the genus (the list of 168 species, established for this publication, was subsequently adopted by the IUCN Red List of Oaks 2020). The topic of acorn collecting is discussed by Allen Coombes, who includes many valuable and practical tips, evidently written from considerable experience (e.g., including a little soil from the base of the tree in the baggie with your acorns will allow them to have access to the mycorrhiza associated with the species). The baton is then passed back to Maricela, who describes oak germination from a Mexican perspective; next, Arturo Parra Suárez of JBU-BUAP joins her to deliver valuable advice on methods and materials required for the successful raising of seedlings. This is not the usual tricks of the trade for the weekend hobbyist: given the conservation-oriented scope of the publication, the advice is also geared for those needing to propagate seedlings by the thousands for major restoration projects.

Nina Bassuk of Cornell University collaborates on the subject of grafting and propagating oaks from cuttings, mainly focusing on the latter: grafting is covered superficially and readers are directed to the publications by Dirk Benoit and Brian Humphrey for further information. Paulina Morales Sandoval, a researcher at JBU-BUAP, describes the latest methods for micropropagation in vitro, citing the work and methods of Li Qiansheng et al. published in *International Oaks* No. 30. The publication is rounded off with two chapters that zoom back out to the big picture: Antonio González Rodríguez and Jesús Llanderal Mendoza of the National Autonomous University of Mexico (UNAM - Morelia) describe the natural variation of oak species and the need to incorporate it in conservation efforts; then the Global Tree Conservation Program team from The Morton Arboretum outline a strategy for the conservation of Mexican oaks. This will be carried out under the auspices of the Global Conservation Consortium for Oak , led by Dr. Murphy Westwood, with Maricela Rodríguez-Acosta as Coordinator for Mexico and Central America. The publication is in fact one of the first achievements of this Mexican/Central America branch of the GCCO, produced to support their oak conservation work; it is an impressive accomplishment, auguring a very successful future for this organization.

This publication puts Spanish speakers in the rare—and privileged—position of having access to one of the best resources for information on oaks and their cultivation. This privilege could—and should—be temporary: a translation into English of the *Manual para la Propagación de* Quercus would be a very worthwhile endeavor.



Quercus Propagation Manual: An easy and quick guide to growing oaks in Mexico and Central America
(in Spanish).
Editors: Dr. Maricela Rodríguez-Acosta and Allen Coombes
Available for download at bit.ly/manprop

Quercus paxtalensis **seedlings in Polipot pots, where they will remain till they are two years old. The Manual recommends three-fold labeling of seedlings: a label attached to the pot, another buried between the side of the pot and the potting soil, and the name written with permanent marker on the side of the pot. © Maricela Rodríguez-Acosta**

Oak-Focused Seminars Available Online

by Editorial Staff

Murphy Westwood and Tim Boland, members of the IOS's Oak Conservation and Research Committee, recently presented back-to-back seminars for a webinar series sponsored by the Ecological Landscape Alliance and American Public Gardens Association. In them they discuss the diversity and ecology of oaks, the main threats they are facing, and how endangered oak species can be saved from extinction. The videos have been made available online and are well worth watching. Follow the links below to access them:

The American Oaks: Diversity, Ecology, and Identification

http://bit.ly/americanoaks

Join Tim Boland to understand the great diversity of oaks found throughout North America and locally in New England. Tim paints a picture of the genus *Quercus*, including its fascinating evolutionary history and challenges posed by climate change. He illuminates the deep connection oaks have to humanity across the world, and explains why they are widely considered to be the ecological glue that holds plant communities together. Familiarity with oaks is vital for anyone looking to garden for biodiversity. Tim shows us how to identify most of the twelve species native to New England and offers guidance on species selection, installation, and maintenance for establishing oak trees in our managed landscapes.

Oak Red-List Project: Main Threats to Oaks and Saving Oaks from Extinction

http://bit.ly/oakredlist

Oaks are sometimes referred to as the "tree of life" for providing food and shelter for a multitude of wildlife species. Murphy Westwood, director of global tree conservation for The Morton Arboretum in Illinois, refers to oaks as the "kingpins in the forest." But today oaks are in trouble. Razed to make way for crops, pastureland, and development, and ravaged by fire suppression, climate change, diseases, and pests, this country's oak forests are a fraction of what they once were, and those that remain are declining rapidly. In a recent analysis, Morton Arboretum scientists found that 28 of the 91 native oaks in the US—or more than 30 percent—are of conservation concern. That percentage of at-risk species in one genus, Westwood says, "is seriously worrying." Notably, oaks' longevity and slow growth rates make them particularly susceptible to the effects of a rapidly changing climate. In this presentation, Dr. Westwood discusses the economic, ecological, and cultural value of oaks, and explains the threats each species faces and the conservation efforts underway to save them, including the establishment of the Global Conservation Consortium for Oak, a recent global initiative to coordinate conservation efforts across sectors and regions to ensure no oak species goes extinct.

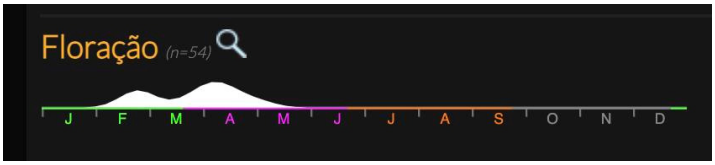
Iberian Holm Oak Jumps the Gun in Portugal

by Philip Perry

The weather here in the southern part of Portugal (Baixo Alentejo) has been quite dry for the last couple of years. Our seasonal river did not run for two years and our dam dried out completely.

Last year's rainy season, which started in September, has been much wetter. As a result our seasonal river is flowing and the dam filled up.

A number of plants appear to have had reactions to these wetter conditions. Some of our Iberian Holm Oak (*Quercus rotundifolia*) trees were in full flower at the beginning of December 2020. Yet most of the Iberian Holm Oaks were still dropping acorns. The usual flowering period is from early February (as per chart below from the Portuguese Botanical Society's website).



It will be interesting to see if the flowers set and produce acorns next year.

Quercus rotundifolia **in flower, Baixo Alentejo, Portugal, December 2020 © Philip Perry**

Oak Conservation and Research Committee Announces First Round of Grant Funding

by Tim Boland
Chair
Oak Conservation and Research Committee

The IOS created the Oak Conservation and Research Fund in 2019 thanks to a generous donation by long-time members Mark and Jolly Krautmann. The IOS then offered members an opportunity to match their generosity. Several of you responded by giving funds to support research in the following areas: habitat restoration, ex-situ conservation, field surveying and population monitoring, education, and population reintroduction and reinforcement.

The Committee made a call for proposals and then went to work evaluating the applications with an advisory group of experts led by Committee member Dr. Murphy Westwood, who authored the request for proposals and established a rating system to review the projects.

We are pleased to announce the following awards:

Project Title: Oak Conservation in Laos

Project Contact: Phetlasy Souladeth, Research Faculty of Forest Science, National University of Laos, Dongdok Campus, Xaythany District, Vientiane Capital, Laos, Vietnam.

Amount Awarded ($5,000)

The project aims to improve knowledge of the genus *Quercus* in Laos. It will include field surveys, collection of herbarium specimens, a taxonomic treatment and checklist for the genus, and plant identification training. The work will center around five oak species: *Q. austrocochinchinensis* (Vulnerable), *Q. kingiana* (Endangered), *Q. saravanensis* (Data Deficient), *Q. thorelii* (Data Deficient), and *Q. xanthotricha* (Endangered).

***Quercus kingiana*, one of the species targeted by the oak conservation project in Laos – Illustration by Keiko Tokunaga**

Project Title: Building Local Capacity to Monitor and Conserve Oaks in Woodlands Managed for Charcoal

Project Contact: Tuyeni Heita Mwampamba, Research Professor Level A, Institute for Ecosystems and Sustainability Research, National Autonomous University of Mexico – Campus Morelia, Mexico.

Amount Awarded ($5,000)

The project's aim is to generate information that forest owners involved in the charcoal sector need in order to make informed decisions about how to enhance oak conservation on their land. It will be carried out in a pilot site located in the State of Guanajuato, Mexico in the Santa Rosa de Lima Highlands, belonging to one of the largest charcoal producers in the area. The scientists-practitioner collaborative approach is aimed at co-designing and implementing an oak-monitoring program grounded on scientific and local knowledge.

Project Title: Advancing the Ex-Situ Conservation of Oaks Using Cryopreservation

Project Contact: Valerie C. Pence, Ph.D., Director of Plant Research, Center for Conservation and Research of Endangered Wildlife (CREW), Cincinnati Zoo & Botanical Garden, Cincinnati, Ohio.

Amount Awarded ($5,000)

The project will focus on stem cell, or shoot tip, cryopreservation and will work with three threatened oak species: *Q. arkansana*, *Q. havardii*, and *Q. acerifolia*. It will also include a virtual training workshop in

Request to IOS Members to Participate in Oak Research Project

Alex Kirsch, a master's candidate at Minnesota State University, Mankato, is conducting a study with Dr. Matthew Kaproth on ecological specialization in oaks. Alex would greatly appreciate it if IOS members could participate in a survey designed to provide a dataset for the comparison of specialization between different *Quercus* species.

The survey is completed online. Follow the link below for more information and to access the survey:

https://www.internationaloaksociety.org/content/request-ios-members-participate-oak-research-project

2021, in conjunction with an oak cryopreservation symposium being planned in collaboration with the Global Conservation Consortium for Oak (GCCO) Cryopreservation Working Group.

Acknowledgments

The Oak Conservation and Research Committee would like to thank the Krautmanns and our members who have enabled this critical work to move forward. We also thank Dr. Murphy Westwood for her leadership in organizing the structure and mechanics of the grant program as well as assembling our talented team of reviewers: Elizabeth Thomas (Polly Hill Arboretum), Maura L. Quezada (Universidad de San Carlos de Guatemala), Dr. Joeri S. Strijk (Alliance for Conservation Tree Genomics), Dr. Min Deng (Yunnan University), and Dr. Susana Valencia-Avalos (National Autonomous University of Mexico).

I also acknowledge the support and contributions of the IOS Board of Directors, who have brought great enthusiasm and support for the Oak Conservation and Research Fund.

IOS members will be periodically updated on the progress of these projects via our webpage and newsletter. The publication of project results will ultimately appear in future IOS Journals.

From the Board

by Shaun Haddock

In my message in the December e-communication to members, *The Cupule*, I wrote that Covid-19 refuses to leave us alone, and sadly never was a truer word written! However, on the positive side, I think we are all learning to adapt to the present situation, and the massive vaccination programs now under way must eventually bring reward. Meanwhile, apart from the loss of our 2020 events, the Society carries on much as normal, thanks in particular to the editors of our publications and website. My thanks of course also go to all members who have faithfully renewed for 2021.

A Board "meeting" at the end of last year produced several points to bring to your attention:

Members have already been notified that our next Conference, scheduled for late 2021 in Taiwan, has now been postponed until 2022. Conferences will then continue at three-year intervals as normal, thus in 2025, 2028, etc. We have decided that rather than hold Board elections in what is now a non-Conference year, the present Board will extend its term by one year until 2022 due to the unique circumstances. This is a good moment to remind members that our Board is still not up to full strength, so we are always on the lookout for new talent. Perhaps you?

Legislation now requires us to have a Privacy Policy, which you can now find, should you wish, on our website. However, I would like to stress that the IOS has in any case a low "privacy footprint", in that we never disclose your details to outside parties, and we take only the minimum information from you required to communicate and to process memberships and renewals, during which procedure we do not store bank account or card numbers.

Our Treasurer, Dirk Giseburt, assured us that our regular budget is proceeding to plan, so amongst all the gloom there is good news to be found! Thus the Board agreed to release IOS funds to research improvements to our 'Oak Names' site. Whilst on the subject of finance, you will remember that the IOS has set up an independently administered Fund for Oak Conservation and Research, an idea which was put forward by long-time member Mark Krautmann during our last Members' Meeting in California. Mark and his wife Jolly also contributed an amazing US$20,000 to get the Fund rolling, a contribution they intended would be matched by donations from other members. We are still about $5,000 short of that target, no doubt in part due to the economic uncertainty brought on by the pandemic. Nevertheless, I am delighted to say that the Fund has awarded its first grants, details of which appear in the previous article. Meanwhile, as the Covidiocy starts to abate, the Fund is still open to contributions!

Once again, keep safe and keep healthy.

IDS Tour Features Oak Collections

The International Dendrology Society is organizing a Tour of South West France and Northern Spain, Sep 29-Oct 4, 2021, featuring four outstanding oak collections: Iturraran Botanical Garden, Arboretum de Chocha, Arboretum de la Bergerette, and Arboretum des Pouyouleix. See the Events page on the IOS website for more information: www.internationaloaksociety.org/upcoming-events

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