



# International Oaks

The Journal of the International Oak Society

Proceedings  
8th International Oak Society Conference  
October 18-21, 2015

Issue No. 27/ 2016 / ISSN 1941-2061



# International Oaks

The Journal of the International Oak Society

---

Proceedings  
8th International Oak Society Conference  
October 18-21, 2015

Issue No. 27/ 2016 / ISSN 1941-2061





## International Oak Society Officers and Board of Directors 2015-2018

### Officers

*President* Charles Snyers d'Attenhoven (Belgium)

*Vice-President* Shaun Haddock (France)

*Secretary* Gert Fortgens (The Netherlands)

*Treasurer* James E. Hitz (USA)

### Board of Directors

*Membership Director*

Robert Routon (USA)

*Tour Director*

Shaun Haddock (France)

*International Oaks*

*Editor* Béatrice Chassé

*Co-Editor* Allen Coombes (Mexico)

*Oak News & Notes*

*Editor* Roderick Cameron (Uruguay)

*Co-Editor* Ryan Russell (USA)

*Website Administrator*

Charles Snyers d'Attenhoven

### Editorial Committee

*Chairman*

Béatrice Chassé

*Members*

Roderick Cameron

Allen Coombes

Dirk Giseburt (USA)

Shaun Haddock

Ryan Russell

### For contributions to *International Oaks*

contact

Béatrice Chassé

pouyouleix.arboretum@gmail.com or editor@internationaloaksociety.org

Les Pouyouleix

24800 St.-Jory-de-Chalais

France

Author guidelines for submissions can be found at

<http://www.internationaloaksociety.org/content/author-guidelines-journal-ios>

© 2016 International Oak Society

Copyright of *International Oaks* and to articles in their final form as they appear in the publication belong to the International Oak Society. Copyrights to texts, photographs, illustrations, figures, etc., belong to individual authors and photographers.

**Cover illustration.** Wendy Brockman (*Quercus palustris*).

**Photos.** p. 9: James MacEwen (Michael Heathcoat Amory); p. 10: Guy Sternberg (8<sup>th</sup> International Oak Society Conference participants); p. 11: Charles Snyers d'Attenhoven (*Quercus stellata*); p. 13: Béatrice Chassé (*Q. ×fernowii*).

**[www.internationaloaksociety.org](http://www.internationaloaksociety.org)**

**Join the International Oak Society today!**

# Table of Contents

—/ 11 /—

Foreword

Twenty-one Years After

*Charles Snyers d'Attenhoven*

—/ 13 /—

Preface

From Small Acorns

*Sara Oldfield*

—/ 15 /—

Introduction

Oak Research in 2015: a Snapshot from the IOS Conference

*Andrew L. Hipp*

—/ 23 /—

Systematics and Biogeography of the American Oaks

*Paul S. Manos*

—/ 37 /—

Diversity, Distribution and Ecosystem Services of the North American Oaks

*Jeannine Cavender-Bares*

—/ 49 /—

Drought Tolerance and Climatic Distributions of the American Oaks

*Matthew Kaproth and Jeannine Cavender-Bares*

—/ 61 /—

Phylogeny and Introgression of California Scrub White Oaks (*Quercus* section *Quercus*)

*Victoria L. Sork, Erin Riordan, Paul F. Grugger, Sorell Fitz-Gibbon, Xinzeng Wei, and Joaquín Ortego*

—/ 75 /—

A Tough Little Survivor: The West Texas Oak, *Quercus hinckleyi*

*Janet Rizner Backs*

—/ 83 /—

Landscape and Conservation Genetics of the Island Oak, *Quercus tomentella*

*Mary V. Ashley, Janet R. Backs, and Saji T. Abraham*

—/ 91 /—

Hybridization and Adaptive Divergence in Oaks

*Olivier Gailing and Jennifer Riehl*

—/ 99 /—

Asexual Propagation of Oak Hybrids: Our Progress, and the Challenges of Producing Clonal Plants  
*Nina L. Bassuk, Bryan R. Denig, and Miles Schwartz Sax*

—/ 107 /—

Eating Acorns: What Story do the Distant, Far, and Near Past Tell Us, and Why?  
*Béatrice Chassé*

—/ 137 /—

New and Lesser-Known Cultivars 2013-2015  
*Ryan Russell and Eike Jablonski*

—/ 149 /—

Anther Culture of Turkey Oak (*Quercus cerris*)  
*Joseph Rothleutner*

—/ 155 /—

The Plant Collections Network and the *Quercus* Multisite Collection  
*Greg Paige*

—/ 163 /—

Rescuing Plant Species with Extremely Small Populations in China: the Case of the Xichou oak,  
*Quercus sichourensis*  
*Weibang Sun, Zhekou Zhou, Wenyun Chen, Yuan Zhou, Lei Cai, Murphy Westwood, and Jessica Turner*

—/ 171 /—

Conservation of *Quercus arbutifolia*, a Rare Oak, from Southern China's Montane Cloud Forests  
*Min Deng, Xu Jun, Yi-Gang Song, and Xiao-Long Jiang*

—/ 181 /—

A Genetic Map for the *Lobatae*  
*Arpita Konar, Olivia Choudury, Oliver Gailing, Mark V. Coggeshall, Margaret E. Staton, Scott Emrich, John E. Carlson, and Jeanne Romero-Severson*

—/ 189 /—

Development of New Genomic Resources for Northern Red Oak, *Quercus rubra*  
*Christopher R. Heim, Mark V. Coggeshall, Arpita Konar, and Jeanne Romero-Severson*

—/ 195 /—

Sustaining Oaks in the Chicago Region Landscape: Developing a Plan for Maintaining Oak  
Dominance in an Urban Landscape  
*Lindsay Darling and Robert T. Fahey*

—/ 207 /—

Pathfinder: the Last Prairie Sentinel  
*Guy Sternberg*

—/ 217 /—

Oaks in Puebla: Growing Successes and Failures, and New Research Topics  
*Maricela Rodríguez-Acosta, Allen J. Coombes, Carlos A. Paredes-Contreras, Stephanie Fernández-Velázquez, and Citlali Guevara-González*

—/ 227 /—

Searching for the Hardy Southern Live Oak  
*Anthony Aiello*

—/ 233 /—

The Last Basketmaker: Indiana's Forgotten History of Oak-Rod Baskets  
*Jon Kay*

—/ 245 /—

Are Resource Dynamics a Necessity for Oak Masting?  
*Ian Pearse*

—/ 255 /—

Preserving Oak (*Quercus* sp.) Germplasm to Promote Ex-Situ Conservation  
*Christina Walters, Lisa Hill, Jennifer Crane, Marcin Michalak, Xia Ke, Jeffrey Carstens, Kevin Conrad, Murphy Westwood, Alison Colwell, Joanna Clines, and Pawel Chmielarz*

—/ 267 /—

The Pace of Microevolution of European Oaks During Environmental Changes  
*Antoine Kremer*

—/ 277 /—

Launching the Global Oak Conservation Initiative at The Morton Arboretum  
*Lisa Kenny and Murphy Westwood*

—/ 290 /—

Workshops

—/ 305 /—

Poster Sessions

—/ 343 /—

Pre-Conference Tour  
*Roderick Cameron*

—/ 364 /—

The Morton Arboretum  
*Charles Snyers d'Attenhoven*

—/ 375 /—

Post-Conference Tour  
*James Hitz*

—/ 390 /—

International Oak Society Service Awards

—/ 392 /—

First International Oak Society Silent Auction





Young *Quercus grisea* in the LBJWC tree nursery (Andrew McNeil-Marshall).

# The Oak Collection of the Texas Arboretum at the Lady Bird Johnson Wildflower Center

**Andrew McNeil-Marshall**

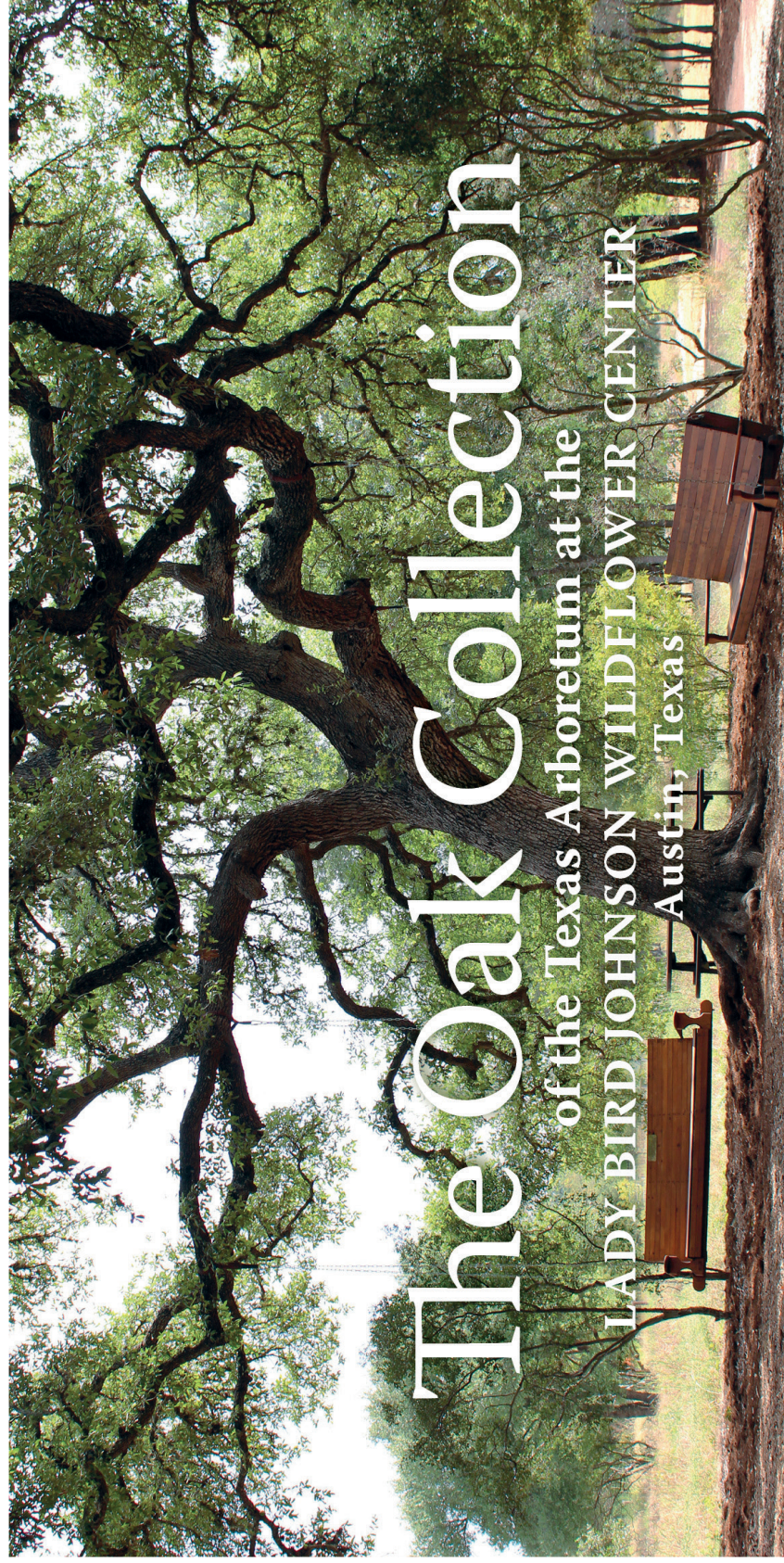
Texas Arboretum at the Lady Bird Johnson Wildflower Center  
Austin, TX 78739, USA  
[amm@wildflower.org](mailto:amm@wildflower.org)

The 16-acre Texas Arboretum at the Lady Bird Johnson Wildflower Center in Austin, TX opened in 2012. It has been *developed as a classic arboretum of interpreted collections where visitors can learn about the diversity of Texas trees in a relatively compact area. These collections exist in the context of several groves of large, established live oaks, Texas red oaks, and post oaks.*

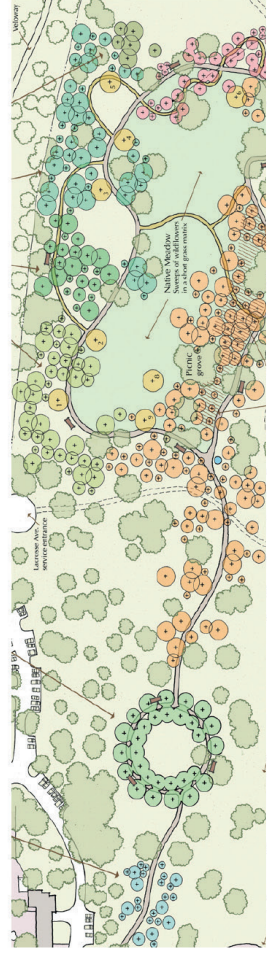
One major aspect of the Arboretum is the Texas oak collection. The eventual goal is to display all 50 native Texas oak species. The Wildflower Center collection policy states that the botanic garden will only collect, propagate, and display plants growing naturally within the state of Texas. Because the state is so diverse ecologically there are many different native oaks – mesic and xeric, montane and lowland, eastern, western, and those few peculiar species occurring exclusively in Texas. Due to commercial unavailability the Arboretum staff have had to find, collect, and propagate many of these species for eventual planting in the Arboretum. A basic collection has been established at this time (22 species), and the collection is being updated yearly. With collection trips across the state, on both private and public lands, Arboretum staff are slowly gaining the knowledge and plant material to grow the Texas oak collection.

Another major feature of the Arboretum is the Hall of Texas Heroes where Texas history is celebrated through the propagation and display of historically significant trees. Because of their iconic nature and long life, oak trees are often identified with historic places and events. The Hall of Texas Heroes will display the progeny of 28 of these oaks. Currently in the propagation phase, planting will begin in the winter of 2015.





THE 16-ACRE TEXAS ARBORETUM AT THE LADY BIRD Johnson Wildflower Center in Austin, Texas opened in 2012. It has been developed as a classic arboretum of interpreted collections where visitors can learn about the diversity of native Texas trees in a relatively compact area. These collections exist in the context of several established oak groves. Two major components of the Arboretum are the Texas oak collection and the







**COLLECTION** The Lady Bird Johnson Wildflower Center has agreements with many different local, state, national, and private agencies and individuals to collect on properties throughout the state. In early fall of 2015 Arboretum staff made two trips to west Texas, collecting 13 oak species in as many days. Collections occurred in Big Bend National Park, Davis Mountains, and the Franklin Mountains in El Paso County.



**PROPAGATION** The Wildflower Center has dedicated greenhouses and several outdoor fenced yards for plant propagation. Acorns are started in 2x5 inch liner pots. At an appropriate time they are transplanted into gallon RootMaker pots. Arboretum staff select quality specimens for planting in the oak collection. Remaining stock are held for the biannual native plant sale or community distribution.



**HALL OF TEXAS HEROES** The Hall of Texas Heroes is a collection of the progeny of 28 historic trees from around the state of Texas, all either *Quercus virginiana* or *Q. fusiformis*. These trees will be displayed around a circular walk that is part of the larger Arboretum trail. Collection is nearly complete for this group of trees and they are growing in the Wildflower Center nursery. Planting is set to begin winter 2015.



#### WEST

- *Quercus arizonica*
- *Quercus carmenensis*
- *Quercus chihuahuensis*
- *Quercus depressipes*
- *Quercus emoryi*
- *Quercus gravesii*
- *Quercus graciliformis*
- *Quercus gambelii*
- *Quercus grisea*
- *Quercus havardii*



- *Quercus hinckleyi*
- *Quercus hypoleucoides*
- *Quercus intricata*
- *Quercus mohriana*
- *Quercus oblongifolia*
- *Quercus polymorpha*
- *Quercus pungens*
- *Quercus rugosa*
- *Quercus robusta*
- *Quercus tardifolia*
- *Quercus toumeyii*



- *Quercus turbinella*

#### CENTRAL

- *Quercus buckleyi*
- *Quercus laceyi*
- *Quercus macrocarpa*
- *Quercus marilandica*
- *Quercus muhlenbergii*
- *Quercus shumardii*
- *Quercus sinuata* var. *breviloba*
- *Quercus vaseyana*



#### EAST

- *Quercus alba*
- *Quercus arkansana*
- *Quercus boyntonii*
- *Quercus falcata*
- *Quercus hemisphaerica*
- *Quercus imbricaria*
- *Quercus incana*
- *Quercus lyrata*
- *Quercus laurifolia*
- *Quercus margarettae*



- *Quercus michauxii*
- *Quercus nigra*
- *Quercus pagoda*
- *Quercus phellos*
- *Quercus similis*
- *Quercus sinuata* var. *sinuata*
- *Quercus texana*



- *Quercus velutina*
- *Quercus virginiana*

● Uncommon with restricted distributions  
IUCN Red List of globally threatened oaks