



Interconnecting
Forests, Science and People



1.01.13 - ECOLOGY AND SILVICULTURE OF CHESTNUT

Coordinator: Stacy Clark

Deputies: Veronica Loewe, Maria Patricio and Enrico Marcolin

Nr. 3 / 2022 - July

Come and join us at: <https://www.iufro.org/science/divisions/division-1/10000/10100/10113/>

This is the newsletter from the IUFRO working party 1.01.13 'Ecology and Silviculture of Chestnut'. With this newsletter, we aim at sharing information, exchanging research ideas, and build a network among chestnut researchers. The newsletter will be published every 3 months (see here for previous numbers: <https://www.iufro.org/science/divisions/division-1/10000/10100/10113/publications/>).

If you have an item of interest to share, such as meetings, publications, research projects or job opportunities, please see the Newsletter contributions section below.

***** REMINDER: call for the Special Issue on Ecology and Management of Chestnut *****
(see section Call for papers)

***** EXTENDED Submission deadline: 30 September, 2022**

<https://www.journals.elsevier.com/forest-ecology-and-management/call-for-papers/call-for-papers-on-special-issue-ecology-and-management-of-castanea>

*****Currently published for the SPECIAL ISSUE:**

Preferential allocation of carbohydrate reserves belowground supports disturbance-based management of American chestnut (*Castanea dentata*)

Madeline S. Montague, Simon M. Landhäusser, Gordon G. McNickle, Douglass F. Jacobs

1 April 2022 - <https://doi.org/10.1016/j.foreco.2022.120078>

Preferences of avian seed-hoarders in advance of potential American chestnut reintroduction

James R. Wright, Stephen N. Matthews, Cornelia C. Pinchot, Christopher M. Tonra

1 May 2022 - <https://doi.org/10.1016/j.foreco.2022.120133>

Phenology, cold injury and growth of American chestnut in a Range-Wide provenance test

Paul G. Schaberg, Paula F. Murakami, Kendra M. Collins, Christopher F. Hansen, Gary J. Hawley

1 June 2022 - <https://doi.org/10.1016/j.foreco.2022.120178>

Mixed-effects generalized height-diameter model: A tool for forestry management of young sweet chestnut stands

Maria Sameiro Patrício, Cremildo R.G. Dias, Luís Nunes

15 June 2022 - <https://doi.org/10.1016/j.foreco.2022.120209>

For updates on the progress of the Special Issue:

<https://www.sciencedirect.com/journal/forest-ecology-and-management/special-issue/10RX05B62LH>

and on the group's activities:

<https://www.researchgate.net/project/IUFRO-Working-Party-10113-Ecology-and-silviculture-of-chestnut>

Group members



[Stacy Clark](#), Coordinator
USDA Forest Service, Knoxville, Tennessee, USA
stacy.l.clark@usda.gov



[Maria Patricio](#)
Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança,
Bragança, Portugal.
sampat@ipb.pt



[Verónica Loewe](#)
Instituto Forestal INFOR, Ñuñoa, Santiago, Chile.
vloewe@infor.cl



[Enrico Marcolin](#)
Department of Land, Environment, Agriculture and Forestry - University of Padova,
Padova, Italy
enrico.marcolin@unipd.it

News from the working party

Our working party was officially formed in May 2021. We have held several virtual meetings to discuss future projects and opportunities for collaboration. In addition to this newsletter, our first project is to develop a special issue on chestnut ecology and silviculture (see below). We are also working on a synthesis paper on *Castanea sativa* and *C. dentata* for this special issue and we are nearing completion of this work. We are also interested in submitting a special session proposal to the IUFRO World Congress to be held in Stockholm in 2024 (see <https://iufro2024.com/> for more information). Please contact us if you would like to collaborate with us on this special session proposal. We are particularly interested in collaborating with other IUFRO Divisions or Working Parties.

News from the chestnut world

- The **NE-1833 chestnut conference** is to be held from August 26th and 27th 2022 at the Virginia Department of Forestry, 900 Natural Resources Drive in Charlottesville, VA, USA. Contact Tom Saielli for more information. Tel:+1- 828-450-9100; tom.saielli@acf.org
- **VIII National Conference on Chestnut (Italy) – VIII Convegno Nazionale del Castagno**, Portici, Napoli: September 14-16, 2022
<https://www.soihs.it/content.aspx?idct=3&id=2240/>
- **IV Simpósio Nacional da Castanha (Portugal) - IV National Chestnut Symposium**, UTAD, Vila Real: July 7-9, 2022
<http://iv.simposiodacastanha.pt/>
- **VII International Chestnut Symposium Lugo**, Spain: June 26-29, 2023
<https://www.chestnutsymposium.com/>
Abstract submission
Manuscript submission: May 15th, 2023
Start Abstract submission: September 15th, 2022
Deadline abstract submission: December 1st, 2022
- **An online course on the American chestnut** is available that provides information on the history of its demise, silvics, and ecological and cultural significance. It is free and available to anyone.
 - These two videos complement the course:
[Introduction \(https://srs.fs.usda.gov/video/restoration-research-chestnut-1/\)](https://srs.fs.usda.gov/video/restoration-research-chestnut-1/)
[Science in Action \(https://srs.fs.usda.gov/video/restoration-research-chestnut-2/\)](https://srs.fs.usda.gov/video/restoration-research-chestnut-2/)
- **WEBINAR** Lecture by D.E. Davis is available online at [2021 Lecture - Forest History Society](#)
- **NEW RESEARCH PROJECT** on American chestnut field trials in the southeastern United States (see News on R&D section)

Call for Papers

- **Call for Papers on Forest Ecology and Management - Special Issue: Ecology and Management of Castanea.**

<https://www.journals.elsevier.com/forest-ecology-and-management/call-for-papers/call-for-papers-on-special-issue-ecology-and-management-of-castanea>

Submission deadline: 30 September, 2022

Planned publication date: immediately after the acceptance of the manuscript.

Submit your manuscript to: <https://www.editorialmanager.com/foreco/default.aspx>

News on R&D

A project, 'GENOTYPING OF FIELD-TESTED AMERICAN CHESTNUT TREES BRED FOR BLIGHT RESISTANCE' was initiated in May 2021 by research forester, Stacy Clark, with the USDA Forest Service. Leaves from over 800 trees planted at eight locations throughout the Southeastern United States were sampled and are currently being stored for future DNA processing. Cooperators from The University of Tennessee, Virginia Tech, and The American Chestnut Foundation have teamed up with Dr. Clark to genotype the chestnuts that were planted six to thirteen years ago as part of the first hybrid chestnut reintroduction field trials in the United States.



Left: newly developing leaves (foreground) were collected from planted seedlings using a telescoping pole pruner (background). Leaves were placed in cold storage until they can be processed for genotyping.

The American chestnut (*Castanea dentata*) was an ecological keystone and culturally significant species across 200 million acres in eastern North America, but introduction of chestnut blight (*Cryphonectria parasitica*) that causes blight and *Phytophthora cinnamomi* that causes root rot have functionally extirpated this species from its native range. The experimental material in the test plantings was developed by partnership breeding programs, namely The American Chestnut Foundation (TACF), who use a backcross breeding approach to introgress Chinese chestnut (*C. mollissima*) resistance alleles into the American chestnut genome. Each planting was established with parental species and backcross hybrid trees (referred to as BC3F3) that theoretically on average inherited 94% of their genome from the American chestnut and 6% from Chinese chestnut.

Recent data from TACF indicate that the parent of BC3F3 hybrids inherited a wide range of American chestnut ancestry (35% to 99%) and that blight resistance appears to be negatively correlated with genome inheritance from American chestnut. The researchers will use genotyping-by-sequencing to accurately quantify ancestry and link these estimates with field performance and blight resistance. Results could be used to refine genomic prediction models for blight resistance and forest competitive ability and accelerate future generations selection for these traits.

Featured Papers and Books

We ask for your cooperation in case you want to report news (see the section Newsletter contributions).

Effects of Message Framing on Public Responses to Using Genetic Engineering to Restore American Chestnut Trees. 2021. *Society & Natural Resources*, 34:9, 1194-1212.

Petit, J.D., Needham, M.D. and Howe, G.T.

<https://doi.org/10.1080/08941920.2021.1946628>

Preferences of avian seed-hoarders in advance of potential American chestnut reintroduction. 2022. *Forest Ecology and Management*, Volume 511.

James R. Wright, Stephen N. Matthews, Cornelia C. Pinchot, Christopher M. Tonra.

<https://doi.org/10.1016/j.foreco.2022.120133>

Early performance of eight broadleaved species grown as short rotation forest in England. 2022. *Forestry: An International Journal of Forest Research*, Volume 95, Issue 1, Pages 13–27.

H M Mc Kay, A J Harrison, T Connolly, J Forster, S Gregory, E Smith, J Clark

<https://doi.org/10.1093/forestry/cpab033>

Canopy characterization of sweet chestnut coppice in the north of Spain from lidar data. 2022. *European Journal of Forest Research*, pp.1-13.

Prada, M., Canga, E., Majada, J. and Martínez-Alonso, C.

<https://doi.org/10.1007/s10342-021-01436-2>

*The effect of the conversion of chestnut (*Castanea sativa* Mill.) forests to orchards on soil fertility and nutrient content in leaves.* 2022. *Catena*, 211, p.105948.

Papaioannou, E., Kostopoulou, S. and Stefanou, S.

<https://doi.org/10.1016/j.catena.2021.105948>

*Preferential allocation of carbohydrate reserves belowground supports disturbance-based management of American chestnut (*Castanea dentata*).* 2022. *Forest Ecology and Management*, 509, p.120078.

Montague, M.S., Landhäuser, S.M., McNickle, G.G. and Jacobs, D.F.

<https://doi.org/10.1016/j.foreco.2022.120078>

*Beyond blight: *Phytophthora* root rot under climate change limits populations of reintroduced American chestnut.* 2022. *Ecosphere*, 13(2), p.e3917.

Gustafson, E.J., Miranda, B.R., Dreaden, T.J., Pinchot, C.C. and Jacobs, D.F.

<https://doi.org/10.1002/ecs2.3917>

Lignocellulose mulch increases the economic benefit of Chinese chestnut by suppressing weed and ameliorating soil properties. 2022. *Scientia Horticulturae*, 291, p.110576.

Tian, G. and Li, Y.

<https://doi.org/10.1016/j.scienta.2021.110576>

Anti-bacterial, anti-fungal, and anti-inflammatory activities of wood vinegar: a potential remedy for major plant diseases and inflammatory reactions. 2022. *Biomass Conversion and Biorefinery*, pp.1-10.

Yıldızlı, G., Coral, G. and Ayaz, F.

<https://doi.org/10.1007/s13399-022-02482-5>

Assessing the Genetic Identity of Tuscan Sweet Chestnut (Castanea sativa Mill.). 2022. *Forests*, 13(7), p.967.
Cavallini, M., Lombardo, G., Binelli, G. and Cantini, C.
<https://doi.org/10.3390/f13070967>

Biological Richness in the Chestnut (Castanea Sativa) Forests at the Western of the Cantabrian Range. Available at SSRN: <https://ssrn.com/abstract=4123258> or <http://dx.doi.org/10.2139/ssrn.4123258>
Guitian, J.

Climate Change Projections for Bioclimatic Distribution of Castanea sativa in Portugal. 2022. *Agronomy*, 12(5), 1137.
Freitas, T. R., Santos, J. A., Silva, A. P., Martins, J., & Fraga, H.
<https://doi.org/10.3390/agronomy12051137>

Early performance of eight broadleaved species grown as short rotation forest in England. *Forestry: An International Journal of Forest Research*, 95(1), pp.13-27.
Mc Kay, H.M., Harrison, A.J., Connolly, T., Forster, J., Gregory, S., Smith, E. and Clark, J.
<https://doi.org/10.1093/forestry/cpab033>

Phenology, Density and Parasitism of Asian Chestnut Gall Wasp (Dryocosmus kuriphilus) (Hymenoptera: Cynipidae) in Recently Invaded Chestnut (Castanea spp.) Orchards in Michigan. 2022, *Environmental Entomology*, nvac029.
Labbate, L., McCullough, D. G.
<https://doi.org/10.1093/ee/nvac029>

Balancing stand productivity and wood quality in chestnut coppices using chronosequence approach and productivity model. 2022. - Under Review at *European Journal of Forest Research*.
Marziliano, P.A., Tognetti, R., Mercuri, M., Labate, A. and Lombardi, F.
<https://doi.org/10.21203/rs.3.rs-1629582/v1>

Canopy Disturbances Catalyse Tree Species Shifts in Swiss Forests. 2022. *Ecosystems* 25, 199–214.
Scherrer, D., Ascoli, D., Conedera, M. et al.
<https://doi.org/10.1007/s10021-021-00649-1>

Effects of Seasonality and Climate on the Propagule Deposition Patterns of the Chestnut Blight Pathogen Cryphonectria parasitica in Orchards of the Alpine District of North Western Italy. 2022. *Agriculture* 12, no. 5: 644.
Lione, Guglielmo, Francesca Brescia, Luana Giordano, and Paolo Gonthier.
<https://doi.org/10.3390/agriculture12050644>

Assessing heat stress tolerance in Castanea sativa. 2022. *Forestry: An International Journal of Forest Research*, cpac021.
Dorado J. F., Solla A., Alcaide F., Martín M. Á.
<https://doi.org/10.1093/forestry/cpac021>

The Continued Spread of a Wild Population of American Chestnuts. 2022. *Northeastern Naturalist*, 29(3):321-334.
Mazurowski J., Heinrich B., Heinrich L., Loeb C., Rives R.
<https://doi.org/10.1656/045.029.0302>

A Multiplex PCR Approach to Determine Vegetative Incompatibility Genotypes and Mating Type in Cryphonectria parasitica. 2022. Chapter in the book: Plant Pathology. Method and Protocols. Eds. by Luchi N. pp.435-446. Springer.

Kupper, Q. and Cornejo, C.

<https://doi.org/10.1007/978-1-0716-2517-0>

Assessing the Genetic Identity of Tuscan Sweet Chestnut (Castanea sativa Mill.). 2022. Forests, 13(7), 967.

Cavallini, M., Lombardo, G., Binelli, G., & Cantini, C.

<https://doi.org/10.3390/f13070967>

Phenology, Density and Parasitism of Asian Chestnut Gall Wasp (*Dryocosmus kuriphilus*)(Hymenoptera: Cynipidae) in Recently Invaded Chestnut (*Castanea* spp.) Orchards in Michigan. Environmental Entomology. 2022; nvac029.

Labbate, L., & McCullough, D. G.

<https://doi.org/10.1093/ee/nvac029>

Filling the Gap in Southern Europe—Diversity of Cryphonectria parasitica and Associated Mycovirus (Cryphonectria hypovirus 1) in Montenegro. 2022. Journal of Fungi, 8(6), 552.

Nuskern, L., Stojanović, M., Milanović-Litre, M., Šibenik, T., Ježić, M., Poljak, I., & Ćurković-Perica, M.

<https://doi.org/10.3390/jof8060552>

Oxalate oxidase transgene expression in American chestnut leaves has little effect on photosynthetic or respiratory physiology. 2022. New Forests, 1-22.

Onwumelu, A., Powell, W.A., Newhouse, A.E., Evans, G., Hilles, G., Matthews, D.F., Coffey, V. and Drake, J.E.

<https://doi.org/10.1007/s11056-022-09909-x>

Detection, description, and technological properties of colour aberration in wood of standards and shoots from a chestnut (Castanea sativa Mill.) coppice stand. 2022. European Journal of Forest Research, 1-16.

Tamantini, S., Bergamasco, S., Portoghesi, L., Vettraino, A. M., Zikeli, F., Mugnozza, G. S., & Romagnoli, M.

<https://doi.org/10.1007/s10342-022-01468-2>

Correlations among morphological traits of sweet chestnut (Castanea sativa Miller) from Bosnia and Herzegovina. 2022. Folia Forestalia Polonica, 64(1), 49-57.

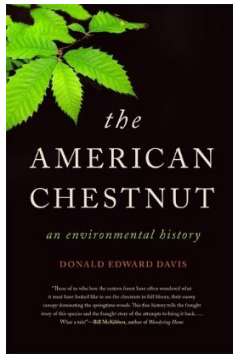
Tuž, A., Hodžić, M. M., & Ballian, D.

<https://doi.org/10.2478/ffp-2022-0005>

Chestnut time and chestnut place: Conserving chestnut-ness (kestanelik) in Turkey. 2022. In: The Cultural Value of Trees (pp. 105-118): Routledge.

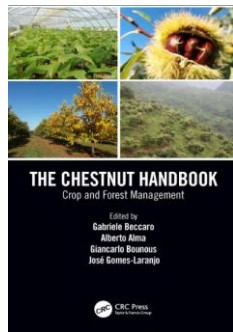
Wall, J.

ISBN 9780429320897



The American Chestnut: An Environmental History. 2021, University of Georgia Press. Athens, Georgia, USA. ISBN: 9-780-8203-6045-4.
Davis, D.E

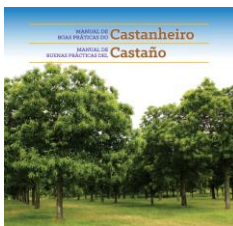
<https://ugapress.org/book/9780820360454/the-american-chestnut/>



The Chestnut Handbook. 2020, CRC Press.

Beccaro, G., Alma, A., Bounous, G., Gomes-Laranjo, J. (Eds.).

<https://doi.org/10.1201/9780429445606>



Manual de Boas Práticas do Castanheiro.

Manual de Buenas Prácticas del Castaño.

Bento, A. and Ribeiro, A. C. (Eds.).

<http://esa.ipb.pt/pdf/ManualBoasPraticasCastanheiro.pdf>



Le selve castanili della Svizzera italiana. Aspetti storici, paesaggistici, ecologici e gestionali. Memorie della Società ticinese di scienze naturali, 13, 249 p.

Moretti M., Moretti G. & Conedera M. (eds.).

Newsletter contributions

Do you have news for us? Newsletter contributions are welcome (i.e. upcoming Seminars, Scholarships, Workshops, Conferences, Blogs, Websites...).

If you would like to contribute to the newsletter, please contact Stacy Clark (stacy.l.clark@usda.gov), Veronica Loewe (vloewe@infor.cl), Maria Patricio (sampat@ipb.pt) or Enrico Marcolin (enrico.marcolin@unipd.it).