International Union of Forest Research Organizations

IUFRO Meeting Report Form

Organizers of IUFRO meetings and IUFRO focal persons at IUFRO co-sponsored meetings, respectively, are kindly requested to fill in and return this form within two weeks after the meeting or by a given deadline by email (wolfrum@iufro.org). This information will be posted at the relevant IUFRO web pages and may be used for IUFRO News and the IUFRO Annual Report.

(Note: Save this file under a new name and write directly into the form.)

1) IUFRO focal person/meeting organizer:

Name: Ricardo Alia
Function in IUFRO: Deputy Coordinator of WP 2.02.13 - Breeding and genetic resources of Mediterranean conifers
Email: alia@inia.csic.es

2) Meeting data:

Full title of the meeting: *Workshop on Forest Genetic Common Gardens*
Date and venue: 27-29 November 2024, CSIC. Madrid (Spain), and online webinar.
Meeting website: https://www.genfored.es/en/workshop-on-forest-genetic-common-gardens/
Number of participants registered: 114
Countries represented:

Argentina
Austria
China
Denmark
Finland
France
Germany
Greece
India
Italy
Kenya
Nigeria
Norway
Peru
Poland
Portugal
Romania
Slovenia
Spain
Switzerland
Tanzania
Tunisia
Turkey
United Kingdom

3) Organization of the meeting:

All IUFRO Units involved:
2.02.13 Breeding and Genetic Resources of Mediterranean Conifers
2.04.00 Genetics

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2.04.02 Breeding strategy and progeny evaluation

Host organization(s) and main sponsor(s): ICIFOR-INIA, CSIC
Co-sponsor(s) and supporter organisations: FORGENIUS (www.forgenius.eu); OptFORESTS (www.optforests.eu).
Study tour(s) to: *No study tour*

4) Meeting report *(max. 100 words per paragraph)*

a) Background information (meeting context)

Genetic trial networks are essential infrastructures that provide experimental data to enable research in breeding, selection methods, adaptive potential, plasticity, evolvability, and conservation and sustainable use of forest tree species under climate change. However, genetic trial networks established in the past, had only one single major objective: the selection of the best plant material in terms of growth traits and survival that could be used in operational plantations and for afforestation purposes, with usually strong biases in populations and sites tested. Recently, new tools (phenotyping, genotyping, environmental modelling) addressing a wider range of objectives have been developed, rendering it necessary to revisit the analysis of existing genetic trial networks. Tree breeders and forest geneticists can provide the insights needed for stakeholders to replace and improve these networks or establish new ones, in the light of the new scientific and practical developments.

b) Key issues discussed/latest findings in the field (bullet points or text)

- To examine the state of the art of existing genetic trial network
- Advanced experimental designs to address the main aims of field experiments
- Application of new tools (phenotyping, genotyping, modelling)
- Data sharing, repositories and analytical methods
- Recommendations for new genetic trial networks
- Traits to be considered in the face of climate change – potential of multi-trait selection methods

c) Conclusions (if possible, summarize key conclusions across presentations):

The conference presentations involved both theoretical and experimental results (see the program in the webpage of the workshop). Participants had expertise on the scientific fields of tree breeding, population genetics and quantitative genetics, but also there were some experts in evolutionary biology who attended the meeting. The value and utility of genetic trials was fully demonstrated and highlighted, together with the need to establish new trials, as they are necessary to advance our understanding of adaptation of forest tree species. The need to include more species, marginal populations and contrasting sites was also highly recommended. Additionally, the need for multiple trait selection and inclusion of traits related to adaptive potential and phenotypic plasticity became very clear and of high importance. However, several constraints related to the biology of forest tree species (flowering discrepancies, issues with seed production, size, logistic difficulties) need to be considered, as well as other issues related to the long-term management and evaluation of forest tree genetic trials (tending, measurement, data sharing). We can use novel technologies to address intrapopulation variability and measure more efficiently different traits.

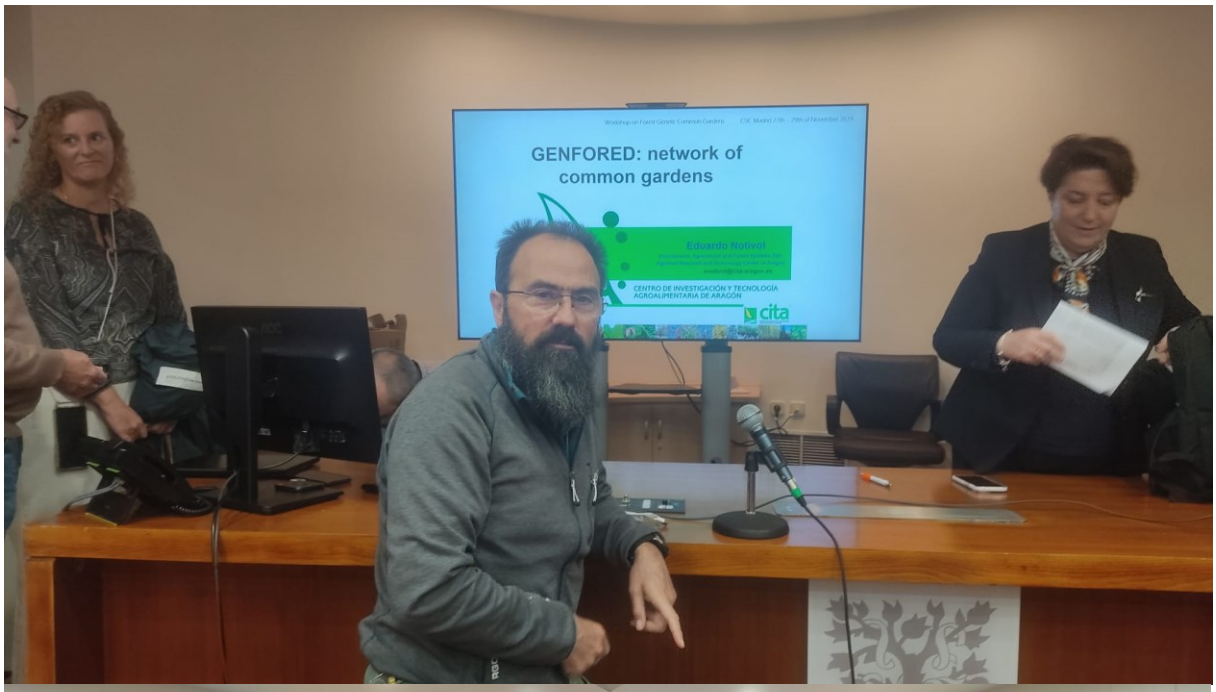
In conclusion, the significance of genetic trials was highlighted together with the fields where additional actions need to be undertaken in the frame of the scope and activities of the IUFRO WP 2.02.13 and in collaboration with other potential partners.

d) Outlook to future activities (proceedings, future meetings, other):

One proposal is to advance in the preparation of an opinion paper on the topic, based on the exchange of ideas during this meeting. In addition, it was discussed the convenience of preparing

recommendations on the specifics of establishment and analysis of genetic trials of Mediterranean conifers.

4) Photos



Thank you very much for your kind cooperation!

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Caption: Some participants in the workshop
Credit (not protected by copyright): D. Barba, E. Notivol

5) Other information:

a) *Communication activities (dissemination of information about the meeting; promotion of IUFRO):* A) Publication of the report on the WG 2.02.13 website, together with the link to the workshop website, B) Preparation of an abstract to be published in IUFRO newsletter.

b) *Related publications/websites:* News articles in EUFORGEN Newsletter (www.euforgen.org), OptFORESTS Newsletter (www.optforests.eu), FORGENIUS Newsletter (www.forgenius.eu), IEFC Newsletter (www.plantedforests.org).

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