Side Event

WEDNESDAY

20 July 2016

13:00-14:30

Canada room

(A357)

COFO 23
WORLD FOREST WEEK
Rome, Italy FAO

MARGINAL AND PERIPHERAL

FORESTS

A key genetic resource for enhancing the resilience of European Forests to global change

A side event of the COST Action FP1202 "Strengthening conservation: a key issue for adaptation of marginal/peripheral populations of forest tree to climate change in Europe (MaP-FGR)"

http://map-fgr.entecra.it

MaP-FGR

cost
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Background

The effects of climate change are likely to be stronger and more rapid in marginal and peripheral populations of forest trees than elsewhere. Marginal and peripheral forest populations are at the edges of species ranges where conditions are less suitable for survival. Studying adaptive processes in these populations is crucial and of mutual interest for European and neighbouring countries for understanding the evolution of species, developing gene pool conservation and promoting management strategies and networks to cope with global changes.

Goal and targeted audience

This meeting caters for parties that are interested in discussing and moving forward the topic of forest genetic resources of marginal tree populations. It aims at discussing strategies to promote and conserve the forest genetic resources provided by marginal and peripheral tree populations in the context of climate change, based on the results of the project COST Action FP1202.

Agenda

13:00-13:15 Welcome and presentation of Cost Action FP1202 on "Strengthening conservation: a key issue for adaptation of marginal/peripheral populations of forest trees to climate change in Europe (MaP-FGR)"
Fulvio Ducci, Chair of Cost Action FP1202, Forestry Research Centre, Arezzo (Italy)

13:15-13:30 Marginality: the core question
Eduardo Notivol, Agrifood Research and Technology Centre of Aragon (Spain)

13:30-13:45 Forest genetic resources and marginal populations
Giovanni Giuseppe Vendramin, Institute of Biosciences and BioResources, National Research Council, Sesto Fiorentino (Italy)

13:45-14:00 Conservation and use of forest genetic resources in the context of global change: what are marginal populations good for?
Bruno Fady, French National Institute Agricultural Research (INRA), Aix en Provence (France)

14:00-14:30 Questions and answers
moderators: Nicolas Picard and Valentina Garavaglia, FAO-Silva Mediterranea

14:30 Light refreshments

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Report of the side event

A side-event of the COST Action FP1202 “Strengthening conservation: a key issue for adaptation of marginal/peripheral populations of forest tree to climate change in Europe (MaP-FGR)” at COFO 23, Wednesday 20 July 2016, 13:00-14:30, Rome, FAO headquarters, Canada Room

Context

Global environmental change, and particularly climate change, challenges the persistence and sustainability of European forests. The potential for forests to adapt to environmental change depends fundamentally on genetic resources, but this potential is being threatened by a diverse set of pressures including human population growth, forest fragmentation and neglect. Future management strategies must aim to conserve genetic variation, secure and enhance the adaptive potential of populations, and deploy forest reproductive material resistant to future environmental stresses. Marginal and peripheral forest populations are at the edges of species ranges where conditions are less suitable for survival. The effects of climate change are likely to be stronger and more rapid in marginal and peripheral populations of forest trees than elsewhere. Also, human pressure is likely to be stronger there, particularly at rear edges (e.g. urban growth, land use change to agriculture). As acknowledged by the FAO Global Plan of Action for forest genetic resources (FGR), studying adaptive processes in these populations is crucial and of mutual interest for European and neighboring countries for understanding the evolution of species, developing gene pool conservation and promoting management strategies and networks to cope with global changes. Marginal and peripheral tree populations (MaP) constitute valuable forest genetic resources for enhancing the resilience of European forests. The unique genetic resources provided by MaP could be used to help European forests adapt to the challenges of the 21st century

Goal

To discuss strategies to promote and conserve the forest genetic resources provided by MaP in the context of climate change, and on the basis on the results of the COST Action FP1202, a side-event was organized by this project at the 23rd session of the Committee on Forestry (COFO) on Wednesday 20 July 2016. The side event gathered a dozen participants from CREA-SEL (Italy), CITA (Spain), IBBR-CNR (Italy), INRA (France), FAO, Bioversity International, EUFORGEN and Forest Europe. After an introductory talk by Fulvio Ducci (CREA-SEL), Eduardo Notivol (CITA) made a presentation on ecological and geographical marginality. Afterwards, Giovanni G. Vendramin (IBBR-CNR) presented a talk on forest genetic resources and marginal populations, and a last talk by Bruno Fady (INRA) addressed the usefulness of MaP for the conservation and use of forest genetic resources in the context of global change.

Main outcomes

The discussion identified several areas where the results of the MaP project could have significant implications. Conservation, restoration, and climate change are major areas where awareness on MaP should be raised. Firstly, conservation policies should take MaP into account. FGR are to be conserved not only *per se*, but also because they are a major part of the solution for adaptation to climate change. *In situ* and *ex situ* conservation programs should more prominently consider MaP. MaP should also be considered when defining habitat conservation networks. The identification of high conservation value forests should therefore consider MaP as a selection criterion. Second, the ongoing initiatives on restoration should consider MaP as part of the solution to provide seeds that are adapted to different and contrasted environments. Third, FGR are essential for adaptation to climate change and MaP should be significantly addressed in the current debate on climate change. Common garden tests should be used to prove the adaptation capacity of populations, and MaP should be included in those tests. The response of MaP to dieback and pests in this context should be further addressed.

At the Mediterranean level, a recommendation is to extend the techniques used in the COST Action

(computation of the marginality indices and of the genetic diversity and structure) to other countries where similar questions regarding FGR are addressed (e.g. Iran). In countries where little has been done for the conservation of FGR, a recommendation of the project would be to pay special attention to MaP and prioritize them in the conservation actions. Core populations are still important as the heart of the genetic diversity, but MaP should be more intensely conserved than core populations.

Beyond MaP, the recognition of genetic diversity as an inherent component of the biodiversity has been a slow process but some results from research are now reaching the arena of decision and policy makers with some implications for forest management. For instance, rules for collecting seeds have now integrated knowledge on genetic diversity. A lot remains to be done. For instance, FSC and PEFC should integrate genetic diversity in their labelling criteria. The tools developed by the project regarding ecological or geographical marginality should be included in the toolboxes for forest monitoring and reporting and, more generally, genetics should enter the monitoring and reporting categories.

There are different ways to capitalize on the results of the COST Action project. Databases and tools developed by the project could be handed over to EUFORGEN for further use and dissemination. The State of the World's Plant Genetic Resources could also take advantage of the clarification of the concepts of marginality and of the data brought by the project. A follow up of the project is already ongoing with the GenTree project funded under EU Horizon 2020 that will eventually bring a clearer picture on these questions at the broad scale. Finally, the working group of *Silva Mediterranea* on FGR could disseminate the tools developed by the project to countries where FGR are less well conserved.

Further information

- Visit http://map-fgr.entecra.it/
- Policy brief: Marginal and peripheral forests: a key genetic resource for enhancing the resilience of European forests to global change. Available at http://map-fgr.entecra.it/wp-content/uploads/2013/07/COST_FP_1202PolicyBrief.pdf
- Fady B., Aravanopoulos F.A, Alizoti P., Mátyás C., von Wühlisch G., Westergren M., Belletti P., Cvjetkovic B., Ducci F., Huber G., Kelleher C.T., Khaldi A., Bou Dagher Kharrat M., Kraigher H., Kramer K., Mühlethaler U., Peric S., Perry A., Rousi M., Sbay H., Stojnic S., Tijardovic M., Tsvetkov I., Varela M.C., Vendramin G.G., Zlatanov T., 2016. Evolution-based approach needed for the conservation and silviculture of peripheral forest tree populations. *Forest Ecology & Management* **375**, 66‑75. DOI: http://dx.doi.org/10.1016/j.foreco.2016.05.015