



FPS COST Action FP1202

Strengthening conservation: a key issue for adaptation of marginal/peripheral populations of forest trees to climate change in Europe (MaP-FGR)

Editorial

COST Action FP1202 MaP-FGR aims to bring together experts in forest genetic resources (FGR) to collect knowledge on Marginal and Peripheral (MaP) populations throughout Europe. The effects of climate change are likely to be stronger and more rapid in MaP populations than elsewhere. MaP forest populations are at the edges of species ranges where conditions are less suitable for survival. Studying adaptive processes in these populations is crucial in understanding the evolution of species and to develop gene pool conservation and management strategies and networks to cope with global change. This Action is therefore of mutual interest to both European and non European countries.

The main objective is to use a multidisciplinary approach to generate relevant knowledge on the role and use of MaP populations in the adaptation of forests to global climate change. It will be achieved by combining existing information from several sources. These include past European projects and networks, and the identification of gaps for future research. These data will contribute to the preparation of national and pan-European forest plans and strategies for adaptation and mitigation, and in the development of criteria for monitoring and conserving FGR which will provide tools for forest managers and decision makers. In addition to this, the Action is an ideal platform to organise training and networking of researchers from European and non-European countries.

The Action was launched in January 2013 in Rome (Italy) and initially involved 22 COST Countries, 5 Near Neighbour Countries and 5 International bodies (such as EFIMED, FAO, IUFRO WP2.04.02). During the first year each Working Group started its activities, and presented on their progress during the second plenary meeting held in Hungary in September 2013.

- Among the most important achievements of 2013 are
- I) by the end of 2013 the number of COST countries participating in FP1202 increased from 22 to 29 and from 5 to 7 for Near Neighbour Countries,
 - II) the first Training School was held in Summer 2013 and involved 21 trainees and 5 trainers,
 - III) 15 Short Term Scientific Missions allowed young researchers to spend a period in another COST institution or laboratory.



Fulvio Ducci
CRA-SEL – Chair of COST Action FP1202

This COST Action FP1202 MaP FGR is a precious opportunity to build knowledge on Marginal/Peripheral populations: a collaboration of almost 40 European and non-European countries, international bodies, institutions and laboratories that are making their experience available to implement current knowledge on the challenging topic of FGRs. It's well balanced project, both by gender and geographically, which aims also to foster the professional and scientific growth of young researchers, promoting their mobility and enhancing new collaborations.

For the second year of the project, 2014, the four working groups will keep working together to achieve the objectives of the Action and to spread the results through scientific papers, conferences, a training school and short term scientific missions.

*Dr. Fulvio Ducci
Chair and Grant Holder, Cost Action FP1202*

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COST countries

| | |
|------------------------|-----------------------|
| Austria | Romania |
| Belgium | Serbia |
| Bosnia and Herzegovina | Slovakia |
| Bulgaria | Slovenia |
| Croatia | Spain |
| Cyprus | Switzerland |
| Czech Republic | The Former Yugoslavia |
| Denmark | Republic of Macedonia |
| Finland | Turkey |
| France | United Kingdom |
| Germany | |
| Greece | |
| Hungary | |
| Ireland | |
| Italy | |
| Latvia | |
| Lithuania | |
| Netherlands | |
| Norway | |
| Poland | |
| Portugal | |

Non COST Countries

| |
|----------------------|
| Syrian Arab Republic |
| Morocco |
| Lebanon |
| Tunisia |
| Algeria |
| Ukraine |

European/International Bodies

- Bioersity International
- International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM)
- Mediterranean Regional Office of the European Forest Institute (EFIMED)
- Food and Agriculture Organization of the United Nations (FAO)
- IUFRO working group WP2.04.02

The Action is training researchers of European and non-European countries and is establishing active and efficient networking/exchanges among scientists.

Fostering a dialogue among scientists from different disciplines provides new insights on the adaptation of MaP FGR to the effects of climate change.

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Marginal and peripheral populations: a challenging definition

Populations may be considered **marginal** for a number of reasons: **geographically marginal** (peripheral) populations are those at the edge of the distribution (leading or rear); **ecologically marginal** populations may be found anywhere in the distribution of the species, including within the core, but at the edge of the species' niche, for example in environmentally unsuitable conditions; **altitudinally marginal** populations are distributed near the species' altitudinal tolerance limit (which may vary in different zonal climatic conditions and due to local azonal conditions) and are usually islands of stunted, deformed trees that with climate warming could develop into reproductively capable and erect formed individuals, acting as 'nucleus' for further species expansion through seed dispersal. Geographically marginal populations may themselves be either marginal or disjunct, with the former connected to the core population by asymmetric gene flow, while the latter are not. For geographically marginal populations, 'leading edge' and 'rear edge' populations can be identified, particularly under changing environmental conditions. The former represent expansion into new territory, with their establishment largely controlled by long-distance dispersal events. The latter represent populations persisting in territory that is becoming unsuitable. Where extinctions occur, the result may be a displacement of the range (trailing edge); alternatively, a fraction of the populations may persist in locally suitable environments (stable edges). Common characteristics of marginal populations include their spatial isolation from the core (continuous) population and the reduced suitability of the environment as compared to that in the core population. Marginal populations are also usually smaller in size, and may be more prone to extirpation as a result. The current scenario of geographical and altitudinal marginalities is the result of multiple processes, including most notably the (i) **evolutionary change** of the abiotic constraints (also the fine-scale environmental variation and stochastic events), (ii) **the biotic interactions** through the spatial dynamics, species dispersal and demographic dynamics processes, and (iii) **human activity**.

On the ground, it can be complex to define marginal and peripheral (MaP) populations. To do so, we need to understand the geography, ecology and genetics of populations, as well as the abiotic (and biotic) drivers responsible for the direction and speed of range shifts. Approaches to identifying existing MaP populations include the use of geographic distances as thresholds when considering geographically marginal populations, while ecological distances (e.g. multivariate distances based on landscape heterogeneity) may highlight ecologically marginal populations. **MaP populations**

may be genetically distinct from the core population and the use of genetic tools is another key approach with which to identify them. Geographically marginal populations may be genetically divergent due to joint effects of genetic drift and natural selection, and may be more prone to extinction. However MaP populations, particularly those on the rear (stable) edge, may also harbour significant, distinctive genetic diversity as a result of adaptation to short term spatio-temporal environmental variation at the range edges, and accumulation of genetic variation due to past climate-driven range dynamics. The key role of those marginal populations for biodiversity maintenance throughout the Quaternary renders them extremely important for the conservation of intra- and interspecific biodiversity in the face of climate change (see Hampe and Petit, 2005).

Given the potential vulnerability of MaP populations, the level and extent of their adaptive plasticity that defines their ability to persist, the speed with which they may move or become extinct, and their disproportionate contribution to genetic diversity, it is crucial to be able to identify them and understand how they are likely to change in response to future climate change. The use of this information in conservation and sustainable management of forest genetic resources will ensure that MaP populations receive the attention they deserve in terms of genetic conservation under climate change.

Given the potential vulnerability of MaP populations, it is vitally important that we are able to identify them and understand how they are likely to change in response to future climate change.

Short Term Scientific Mission of MaP-FGR

STSM, Elena Mosca

Research Innovation Center, Edmund Mach Foundation
S. Michele a/Adige (Trento) Italy



Studying *Pinus cembra* adaptive potential in core and peripheral populations

In September 2013 I visited the Federal Research Institute WSL, Birmensdorf (Switzerland). My STSM was supported by the COST Action FP1202. I was hosted at the Ecological Genetics Group, lead by Dr. Felix Gugerli, who shares my interest in Swiss stone pine (*Pinus cembra*) and alpine forests.

The major goal of this collaboration was to assess the adaptive potential of *P. cembra* to climate change. Within this goal two detailed questions were addressed a) the effects of drought stress and b) the differences in susceptibility to infection by a pathogen among seedlings of different provenances. The steps to achieve this were: i) planning and establishing an open-air trial to test drought effects and pathogen susceptibility of seedlings, ii) collecting seed material from core populations for an expanded experiment, iii) jointly analyzing data on gene-based polymorphisms, and iv) planning a common/reciprocal transplant experiment across core-periphery gradients.

My stay at the Ecological Genetics Group proved to be successful in many respects. The discussion with experts in different research fields helped me to clarify and improve my experimental design. Moreover, I learned and tested a new technique for the treatment of *P. cembra* cones. Overall the visit allowed me to communicate with researchers, technicians and PhD students, which may lead to future collaboration.

I would recommend this experience to junior scientists, as it is a great opportunity to discuss and learn about science beyond reading literature, and improves skills at many levels.

STSM, Dragos Postolache

Institute of Plant Genetics (CNR-IGV)
Sesto Fiorentino, Florence (Italy)



New insights into glacial refugia and postglacial history of Silver fir populations located in the southern peripheral species distribution range

I arranged a STSM at Evolutionary Biology Centre (EBC), Uppsala University, supervised by Prof. Martin Lascoux and Dr. Thomas Källman.

The main goal was to study the genetic diversity structure in Silver fir (*Abies alba* Mill.) populations sampled along altitudinal gradients in the southern peripheral species distribution range. In total 1484 individuals were sampled in 8 populations: French Pyrenees (Ossau Valley), France (Ventoux, Lure, Issole and Vesubie), Italy (Valle della Corte and Colle dell Abete, Marche region) and Romania (Arges County, the Fagaras Mountains). Results obtained using statistical multivariate and Bayesian clustering approaches provide **new insights into glacial refugia and postglacial history of Silver fir populations located in the southern peripheral species distribution range.** The next step will be to use different statistics in order to detect candidate genes potentially involved in local adaptation. The analysis of the genetic structure and the identification of adaptive polymorphisms will make available valuable information on current dynamics and future evolutionary trajectories of *Abies alba* populations strongly exposed to environmental change.

This STSM was very important in allowing me to gain experience on how to deal with SNPs data (single nucleotide polymorphisms) and how to perform different statistical tests to dissect the role of selection and demography in shaping diversity in this species.

Short Term Scientific Mission

These Missions (Inter-laboratory Exchange Visits) are aimed at supporting individual mobility and at strengthening the existing networks and fostering collaborations by allowing scientists to visit an institution or laboratory in another Participating COST Country or an approved NNC (Near Neighbour Countries) institution or an approved IPC (International Partner Countries) institution. A STSM should specifically contribute to the scientific objectives of the COST Action, while at the same time allowing applicants to learn new techniques or gain access to specific instruments and/or methods not available in their own institutions.

For more information:

http://map-fgr.entecra.it/?page_id=76

Objectives

STSMs in the context of MaP-FGR Action are encouraged, paying particular attention to the following objectives:

- **to collect, collate, analyze and synthesize information** from past and ongoing projects related to genetic diversity and impacts of climate change;
- to record and list existing conservation efforts and status, in order **to identify gaps and set conservation priorities;**
- **to analyze and raise awareness on the role of FGR in the adaptation** of MaP populations;
- to perform meta-analysis of collected data **to identify common trends on the dynamics of genetic diversity** in relation to the adaptation to the effects of the global change.

Statistics

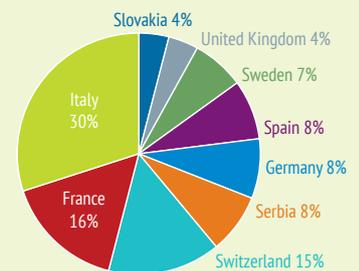
Synthesis of the two 2013 calls for Short Term Scientific Missions:

- **18 eligible applications** received by August 16, 2013;
- **16 grantees** accepted by the STSM selection group;
- **15 grantees** funded for these two STSM Calls;
- Total budget invested for the two STSM Calls: **27 540 Euros;**
- **Country of origin of the grantees:** Italy, Germany, Poland, Portugal, Serbia, Spain, Switzerland and Tunisia;
- **Country of Hosting Institutions:** France, Germany, Italy, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

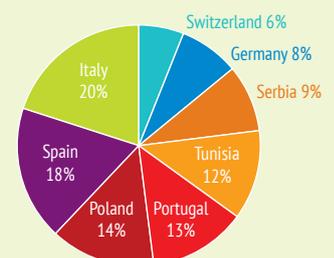
Next call

April 2014

Country of origin of participants



Country of hosting institutions





Statistics

32 applications received, 21 trainees selected
Gender balance: 20% men, 80% women
Total budget invested for funding grants: 16,800 Euros
Total budget for trainers and local organiser: 8,235 Euros

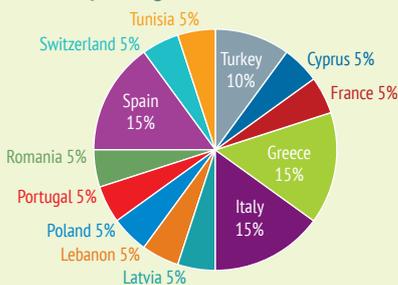
Topics

- Introduction to genetics of MaP populations
Structure and conservation of MaP populations
Ecology of MaP populations
Adaptation and Evolution of MaP populations
Adaptation and evolution of MaP populations/Practical techniques

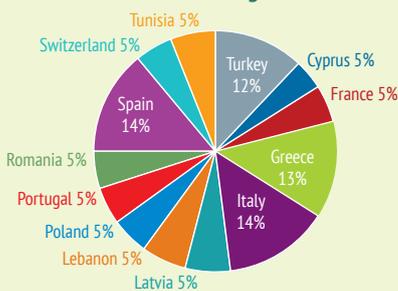
Trainers

Paraskevi Alizoti, Aristotle University of Thessaloniki School of Forestry and Natural Environment Laboratory of Forest Genetics and Tree Improvement, TS coordinator and trainer
Philippos Aravanopoulos, Laboratory of Forest Genetics & Tree Breeding Faculty of Forest & Environmental Science, Aristotle University of Thessaloniki (Greece)
Giovanni Giuseppe Vendramin, National Research Council Plant Genetics Institute (Italy)
Bruno Fady, INRA, Ecologie des Forêts Méditerranéennes (URFM) (France)
Julian Gonzalo, Department of Vegetable Production and Forest Resources University of Valladolid (Spain)
Annette Menzel, Department of Ecology, Technical University of Munich (Germany)

Country of origin of trainees



Grant distribution among trainees¹



¹ Each grant was calculated on the average cost of flight to Chania and accommodation of the country of origin.

2013 Training School of MaP-FGR action

The 1st Training School of COST Action FP1202 (MaP/FGR), under the title 'Genetic, ecological properties of marginal populations and their importance for conservation and use under climate change', was held on 15-19 July 2013 in Chania (Crete) and was hosted by the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM)-Mediterranean Agronomic Institute of Chania (Crete, Greece) (http://www.maich.gr/). The 5 days program included 15 presentations, given by six scientific experts (P. Alizoti, Ph. Aravanopoulos, B. Fady, J. Gonzalo, A. Menzel, G. Vendramin). The 21 trainees from 13 European and non-European countries were trained on cutting edge topics such as: factors shaping the distribution and geographic limits of the forest tree species, genetic consequences of growing at the ecological/geographical margins, genetic conservation and genetic monitoring of marginal/peripheral/small populations, spatial genetic structure in marginal vs core populations, population, landscape, adaptive genetics/genomics in marginal/peripheral populations, abiotic stresses and evolutionary genetics, climate constraints in species distribution models, applications of ecological niche modeling for species delimitation and marginal populations dynamics. The program also included two sessions that provided a platform for the young researchers to present their own work which allowed for vibrant exchange and discussions among the students and the trainers.



P. G. Alizoti
The TS
Coordinator

During the half-day field trip a marginal/isolated population of the endemic species Phoenix theophrastii growing in the area of Preveli (Crete) was visited. The species is classified as Near Threatened (NT) on the IUCN Red List and is growing in eight subpopulations on the Greek Island of Crete, with the largest population containing a few thousand individuals.

It was gratifying to realize how a COST Action Training School could affect young scientists and bring new research pathways to light.



2013 training school in Chania, Greece

International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), Mediterranean Agronomic Institute of Chania (MAICH), Chania, Crete

MAICH is the 4th constituent institute of CIHEAM, the International Centre for Advanced Mediterranean Agronomic Studies, an Intergovernmental Organisation which was founded at the joint initiative of the OECD and the Council of Europe on 21 May 1962 under an agreement signed by the governments of seven southern European countries: France, Greece, Italy, Portugal, Spain, Turkey and Yugoslavia.

The 1962 agreement establishing the Centre stipulates that CIHEAM's mission consists in "providing supplementary education (economic as well as technical) and developing a spirit of international cooperation among agricultural personnel in Mediterranean countries". According to article 15 of this agreement, every country on the Mediterranean rim is potentially eligible for membership of CIHEAM.

Training School in Crete



Joana Magalhães
University of Minho
Braga, Portugal

The 2013 training school on “Genetic, ecological properties of marginal populations and their importance for conservation and use under climate change” held in Chania (Crete) was a wonderful and unforgettable experience. During the week, we discussed the definition of “population” and “marginal-peripheral population”, the ecological and genetic aspects of marginal-peripheral populations and the conservation genetics in marginal, peripheral and small populations. I had the chance not only to learn about these topics, but also to present my work, meet great people and share unforgettable moments. The scientific and technical support was excellent and the logistical support was really fantastic. Besides the support for traveling and subsistence costs, this training school gives a good possibility to scientists, especially new researchers, to establish contacts for some possible future scientific cooperation.

I would like to thank to all the trainers for the knowledge and share of experiences, and the organizers for all the support! In conclusion, it was a really valuable, very informative and unforgettable training school.



Maurizio Marchi
University of Florence (Italy) and Forestry Research Centre (CRA-SEL)
Arezzo, Italy

I participated in the first Training School of COST Action FP1202 in Chania (Crete). As I am a PhD student at Florence University and at Forestry Research Centre (CRA-SEL) in Arezzo (Italy), working on climate change, management of Forest Genetic Resources, Forestry and Ecological modelling, the main topics of the training school were perfect because the goal of COST action FP1202 “marginal populations” is the main topic of my Ph.D. At the beginning of the school, I was a little bit sceptical about how useful the training school would be for me. The majority of topics were about genetic and biology aspects of marginal populations, subjects that I’m not used to studying and developing in my daily tasks. During the school, connections showed by teachers between geneticists, biologists, GIS experts and forest researchers from different countries and working together around the marginal population topic made me understand that good research activities are supported by simple and simultaneous approaches. I appreciated the good connections that exist between researchers from different countries, which are very important to cope with future challenges. We belong to a European Union, so I think we also must begin to think also as a Community.

It was very interesting and stimulating for me to meet young researcher from all over Europe and to be taught by experts’ researchers and I was very lucky to be accepted on the training school. Next year I will suggest that all my friends interested in “marginal population dynamics” should apply.

CIHEAM is made up of four Mediterranean Agronomic Institutes (MAIs), located in Bari (Italy), Chania (Greece), Montpellier (France) and Zaragoza (Spain), and a General Secretariat based in Paris. Since 1986, and as the 4th constituent institute of CIHEAM, MAICh pursues its three main complementary missions through: a) post-graduate specialized education, b) networked research, c) facilitation of regional debate with focus in the fields of Business Economics and Management, Geoinformation in Environmental Management, Horticultural Genetics and Biotechnology, Food Quality and Chemistry of Natural Products, Sustainable Agriculture, and has established itself as an authority in Mediterranean agriculture, Food and Rural Development.

MAICh kindly hosted the first Training School of COST Action FP1202 providing professionalism, consistency and the expertise of highly skilled personnel and executive staff to organize the week. The Conference Center satisfied the requirements of the training school and its staff assisted the logistic of the week facilitating the success of the week.

For more information:
http://map-fgr.entecra.it/?page_id=79

Definition of Training School

Training Schools can be organised by a COST Action on related research topics and can provide dissemination opportunities for an Action’s activities. Training Schools provide intensive training in emerging research topics within the laboratories and organisations involved in the COST Action. Participants are mainly, but not exclusively, young researchers involved in COST Actions. Training Schools also cover appropriate re-training as part of life-long learning.

Next call
April 2014



Working Group 1

Objectives and aims

Gathering available data and compiling ecological, genetic and global change information on FGR and distribution of MaPs.

Working Group 1 is mainly focused on collecting and analyzing scientific and technical information on ecological conditions for MaPs and producing as deliverables, maps, atlas & databases at European level of the current and potential distribution of MaPs on climate change scenarios.

Contacts

Leader, **Julian Gonzalo**, Department of Vegetable Production and Forest Resources University of Valladolid (Spain)

Working Group 2

Objectives and aims

Evaluation and analysis of Working Group 1 information (e.g. genetic diversity maps per species/populations, methodology for evaluation of FGR diversity, compilation of databases of relevant institutions, genetic material, trials and networks, knowledge gaps).

Standardization of methods.
Meta-analysis of the data to identify common and divergent trends of FGR response to global change.

Contacts

Leader, **Giovanni Giuseppe Vendramin**, National Research Council Plant Genetics Institute (Italy)
Deputy-leader, **Paraskevi Alizoti**, Aristotle University of Thessaloniki School of Forestry and Natural Environment Laboratory of Forest Genetics and Tree Improvement

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Working group presentations

Working Group 1

At the recent Working Group 1- Meeting on 'Ecological conditions and climate change impacts affecting MaPs: compilation and standardization methods for geodatabases' held at the Royal Botanic Garden in Madrid in late November, we have been able to make progress on **two main lines of work**:

- **High Resolution (1 km) European Database of Ecological Factors and Species Actual Distribution.** From the analysis on national reports, a nationwide survey on the existing information on ecological conditions and species actual distribution (climatic maps, climate change scenarios, soils, national forest inventories) has been completed with the information extracted from ongoing related projects at European level with overlapping objectives.
- **MaPs definition.** A Geographical and an Ecological Criteria to define MaPs are going to be established through the definition of a geographical distance applied to actual species distribution databases, and an ecological distance applied to species distribution models.

Working Group 1 has set as **goals to perform over next year**, including mapping the MaPs: **MaPs actual distribution, MaPs potential distribution** (on current climatic conditions) and their projections on climate change scenarios. These will be **presented at the 2014 plenary meetings** (Seseira, Portugal, May 2014), **the 2nd Training School** (Jaca, Zaragoza, Spain) and the Working Group 1 **Satellite Meetings and Workshop**: "Ecological conditions and climate change impacts affecting MaPs: applications of Ecological Niche Modeling for MaPs' delimitation and dynamics".

Working Group 2

The 2013 Scientific Aims of the Working Group were:

- **Construction of a database** with metadata on existing field trials and genetic material of forest tree species tested across countries, and metadata on molecular/genetic markers.
- **Identification of those species that fulfill the following requirements:** ample available information on adaptive and neutral genetic variation; extensively distributed with marginal/peripheral populations at the leading and rear edge; populations growing in marginal ecological conditions, considering the species optimum range of conditions. The ongoing activities of Working Group 2 are aiming towards:
 1. Populating with metadata **the prepared Database**
 2. Setting the **requirements for selection of species** of interest, compilation of databases and exploitation of the already existing ones
 3. Organizing the joint **Workshop 'Sharing data and meta-data on the importance of marginal populations for forestry in Europe'** together with Working Group 3 on December 10-12, 2013, in Aix-en-Provence (France)
 4. **Preparing outlines for four scientific case studies** identified by Working Group 2 during the last COST Action Plenary Meeting
 5. Preparing a **draft 'letter' for a peer reviewed journal**, outlining the concept of Map/FGR and key ideas.

Future activities of Working Group 2 in 2014 include, besides the above ongoing ones, the organization of a **Working Group 2 Workshop** for training the Working Group 2 participants on the open database Genfored (for compilation of already existing raw data datasets), as well as on the GD2 database (for compilation of genetic/molecular raw data datasets). Also, a joint Workshop with Working Group 1 will be organized to fine tune combined activities.

Working Group 3

As a first step for developing guidelines to take genetic diversity issues into forest management, Working Group 3 started **to draft an opinion paper on the major challenges faced by MaP populations** under global change and their significance and value for adapting forests to global change. The topics of this opinion paper were discussed during the January Rome (Italy) and September Eger (Hungary) 2013 meetings. The activity involves a group of 30 direct and indirect contributors.

The goal of the opinion paper is to list the guidelines and associated legal issues currently in use or implemented for mainstreaming genetic diversity into sustainable forest management, particularly for MaP populations. This could be used as a baseline for identifying gaps in management strategies. The title of the paper is **“Major challenges faced by MaP populations under global change and their significance and value for adapting forests to global change”**. After preliminary work at the two meetings and via electronic mail, a draft paper will be discussed and edited before circulation to all COST Action members during a writing workshop organized early December 2013 in Aix-en-Provence, France. The opinion paper should be submitted to an international scientific journal during 2014. It will serve as a good demonstration of challenges faced by marginal populations and the benefits the COST action can bring to scientific knowledge and raising awareness.

Working Group 4

During the first year of the COST Action 2013, Working Group 4 launched two calls for Short Term Scientific Missions which supported 15 young researchers. They spent a period in another institution or laboratory of the Action to learn new techniques and establish new collaborations.

The first Training School was organized at CIHEAM in Chania, Crete, and allowed the participation of 21 trainees from 13 countries and 5 trainers highly skilled on the topic of Marginal/Peripheral populations. By the end of 2013 the website of COST Action FP1202 MAP/FGR was launched, after being presented during the second Plenary Meeting held in Hungary (September 2013) for approval by the Management Committee.

The Newsletter of the Action was defined and finalized by April 2014, in collaboration with the Slovenian Forestry Institute.

Future activities for 2014 include: a) the launch of **two new calls for Short Term Scientific Missions**; b) the organisation, in collaboration with the selected local organiser (Spain), of the **second Training School of the Action**; c) the implementation and update of the **website**; d) **collaboration with other working groups** to share results; e) **preparation of a second Newsletter by end of 2014**.



A marginal/isolated population of the endemic species Phoenix theophrastii growing in the area of Preveli (Crete).

Working Group 3

Objectives and aims

Guidelines for mainstreaming genetic diversity into sustainable forest management in the context of global change in Europe (including legal transfer issues).

This Deliverable targets policymakers and managers of forests, but also stakeholders outside this domain, including scientists (geneticists, ecologists, conservation biologists) and protected habitat and landscape managers.

Contacts

Leader, **Bruno Fady**, INRA, Ecologie des Forêts Méditerranéennes (URFM) (France)

Deputy-leader, **Philippos Aravanopoulos**, Laboratory of Forest Genetics & Tree Breeding Faculty of Forest & Environmental Science, Aristotle University of Thessaloniki

Working Group 4

Objectives and aims

Coordination and organization of all networking, databases management, training and communication activities: conferences, workshops, training schools, web toolbox, open access databases, reports, publications, STSMs.

Contacts

Leader, **Christophe Besacier**, FAO Committee on Mediterranean Forestry QUestions-Silva Mediterranea
Deputy Leader, **Valentina Garavaglia**, CRA Arezzo

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FPS COST Action FP1202

Strengthening conservation: a key issue for adaptation of marginal/peripheral populations of forest trees to climate change in Europe (MaP-FGR)

Dissemination events

National Workshop "Perspectives on the Portuguese contribution for the COST Action Fp 1202, possibilities and limits" (Portugal), 8th November 2013

III Mediterranean Forest Week, Tlemcen (Algeria), 17-21 March 2013

Intergovernmental Technical Working Group on Forest Genetic Resources, Rome (Italy), 23 -25 January 2013

Past events:

Working Group 4 meeting for the finalisation of the webpage of COST Action FP1202 (Rome), 23th -28th October 2013

Working Group 4 meeting for the finalisation of the first Newsletter of COST Action FP1202 (Ljubljana), 19th -20th November 2013

Working Group 1 meeting "Ecological conditions and climate change impacts affecting MaP populations: compilation and standardization methods for geodatabases" (Spain), 29th-30th November 2013

Working Group 2 and Working Group 3 joint meeting "Sharing data and meta-data on the importance of marginal populations for forestry in Europe" (France), 10th-12th December 2013

II Plenary meeting, Eger (Hungary), 13th- 17th September 2013

Annual Progress Conference, Madrid (Spain), 25th-26th March 2013

I plenary meeting, Rome (Italy), 24th-25th January 2013

I Management Committee Meeting, Brussels (Belgium), 8th November 2012

