Enhancing FOrest RESearch in the MediTERRAnean through improved coordination and integration

Final Report Summary - FORESTERRA (Enhancing FOrest RESearch in the MediTERRAnean through improved coordination and integration)

Executive Summary:
The FORESTERRA International Project "Enhancing FOrest RESearch in the MediTERRAnean through improved coordination and integration", project number 291832, is part of the ERA-NET initiative. FORESTERRA aims to reinforce the scientific coordination and integration of Mediterranean forest research programmes as well as scientific cooperation with Mediterranean-area countries (including EU and non-EU member states) and with countries from other Mediterranean Climate Areas in this case, Australia, South Africa, Chile and California. This project, which started in January 2012 and that has finised in December 2015, has been part of the 7th Research Framework Programme, and had a
European contribution of 1,997,795.00 Euros. FORESTERRA had partners from twelve countries: Spain, France, Italy, Turkey, Portugal, Tunisia, Morocco, Bulgaria, Slovenia, Croatia, Greece and Algeria, as well as two international institutions, the European Forest Institute (EFI) and the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM). The objectives of FORESTERRA have been: i) mapping and information exchange to improve mutual knowledge of existing programmes and capacities; ii) defining common strategic activities to reduce the fragmentation of the research community, avoiding overlaps and promoting synergies; iii) the implementation of joint activities to consolidate partnerships and develop common schemes for programme evaluation, as well as for mutual opening facilities; and iv) to launch calls for joint research projects to maximise the research impact of the network.

Forest research in the Mediterranean region is currently handicapped by its fragmentation, its limited means, and occasional outdating and isolation. In addition, the low benefits that Mediterranean forests provide to forest-based industries—compared to other European forests—make it difficult to attract interest and funds from the private sector. For this reason, new ways to overcome this situation have been put in place by FORESTERRA aiming at developing national and regional funding partnerships and networking in order to develop joint research partnerships, capacity building, higher education programmes, knowledge transfer and lifelong learning. These initiatives developed by FORESTERRA took advantage of existing initiatives like the Forest Based Sector Technology Platform (FTP), the Mediterranean Regional Office of the European Forest Institute (EFIMED) and the Mediterranean Forest Research Agenda (MFRA) developed jointly by the FTP and EFIMED.

Mediterranean forest ecosystems provide multiple goods and services that are crucial to the socioeconomic development of the Mediterranean region’s rural areas as well as to the welfare of its urban populations. Advancing scientific knowledge and fostering innovation is essential, then, to ensure the sustainable management of Mediterranean forests and to build a knowledge-based bio-economy in the region.

The countries of the Mediterranean basin, as well as those of other Mediterranean Climate Areas, face similar challenges regarding the sustainability of forest ecosystems and the delivery of crucial goods and services that they provide in a context of rapid global changes. Therefore, FORESTERRA focused on mechanisms to reinforce scientific cooperation on Mediterranean forests through a transnational EU-Mediterranean ERA-Net, which also builds new transcontinental cooperation among Mediterranean Climate Areas (California, Australia, South Africa, Chile) in order to reduce fragmentation and maximise the impact of research activities.

The work performed has permitted to implement specific networking activities, identifying common strategic activities with the objective to improve the coordination and cooperation in Mediterranean forest research among different entities from Europe and North Africa and to open possibilities for greater scientific cooperation with other Mediterranean Climate Areas.

The results achieved and their potential impacts and use lead us to believe that the scientific activities resulted from FORESTERRA were able to improve the understanding of i) the vulnerability of Mediterranean forest ecosystems to increased risks related to drastic land-use changes and climate changes; ii) the sustainability of forest ecosystems and the delivery of goods and services in the context of global change, including societal implications such as enhancing sustainable management of Mediterranean forests to ensure that forest goods and services with the highest societal value are preserved and iii) FORESTERRA has improved the knowledge base regarding the impacts of climate change and adaptation strategies for the forest-based sector in the region.

Finally, FORESTERRA supported better informed policies regarding forestry and their contribution to a
knowledge based bio-economy in the region, including implications for water and biodiversity conservation. In the long term, the partners of FORESTERRA are decided to join other forestry-based initiatives such as SUMFOREST and WOODWISDOM ERA-Nets in the framework of an ERA-Net COFUND initiative under H2020.

Project Context and Objectives:
Description of the project context
FORESTERRA’s strategic aim is to reinforce the scientific coordination and integration of Mediterranean programmes in forest research as well as the scientific cooperation with countries of the Mediterranean area (including EU and non-EU member states) and with countries from other Mediterranean Climate Areas (Australia, South Africa, Chile, California).
FORESTERRA provides an ambitious framework for networking and opening national and/or regional programmes to take advantage in the most efficient way of the existing scientific capacities and knowledge to support sustainable development, notably sustainable forest management, including the management of forest resources to mitigate and adapt to climatic threats.

To reach this overall goal, FORESTERRA will:
- Enhance synergies through improve coordination of research programmes in order to avoid duplication of efforts and to direct the resources thus freed up to strategic transnational (and transcontinental) issues;
- Develop knowledge and foster sharing of foresight visions (national and regional) in the Mediterranean area, which will be a driver for research and innovation on Mediterranean forests and the goods and services they provide;
- Increase cooperation among disciplines (hydrology, climatology, ecology, forestry, economics, water engineering, soil science, etc.) and organisations in order to share research facilities and carry out ambitious research projects as well as to build new infrastructures that cannot be undertaken at an individual level;
- Extend the benefit of the network at a global level integrating all concerned Mediterranean Climate Areas.

The concept of FORESTERRA is to foster the coordination of the network participants’ programmes based on their high level of commitment and through a need-driven approach based on four steps, each one contributing on its own to reinforcing the cooperation, and at the same time providing the basis for the design of the next stages:
- Mapping and information exchange to improve mutual knowledge of existing programmes and capacities as well as for sharing best practices;
- Defining common strategic activities to reduce the fragmentation of the research community, avoiding overlaps and promoting synergies among existing capacities and identifying scientific areas (opportunities and gaps) that required transnational funding;
- Implementation of joint activities to consolidate partnerships and develop common schemes for programme evaluation, as well as for mutual opening of facilities, laboratories and experimental sites;
- Calls for joint research projects to maximise the research impact of the network;

In addition to these four steps, a targeted action will focus on “upscale” the previous four at a global Mediterranean level by exchanging information on existing programmes with other Mediterranean Climate Areas in order to identify common strategic activities and scientific priorities of mutual interest.

Main objectives of the project
FORESTERRA will yield three main overall objectives:
1)- Better coordination between partners’ forest research programmes through: monitoring of participating countries’ forest research programmes; identifying duplications, complementarities, gaps, and synergies between partners’ forest research programmes and existing research capacities; redesigning partners’ forest research programmes in order to eliminate overlapping and address uncovered and emerging topics;

2)- In-depth and durable cooperation and integration among FORESTERRA partners (enhancing the scientific links between the northern and southern Mediterranean sub-regions) thanks to: transnational joint activities and new transcontinental scientific cooperation; institutional arrangements for facilitating the implementation of joint research projects as well as for mutual opening of facilities and sharing long-term experimental sites; and the design and development of common methodologies for programme management

3)- Long term contribution to structuring the European Research Area by elaborating a common vision and strategic plan for funding research and fostering innovation based on the Mediterranean Forest Research Agenda 2010-2020, as well as by improving cooperation and integration in the Mediterranean area (North-South) and with other Mediterranean Climate Areas (California, South Africa, Chile, Australia);

The specific project objectives according with the project structure are:

WP1:
- to provide support to all other activities: organisation, communication and information.

WP2:
- to characterise the ongoing funding research programmes and projects carried on in the different FORESTERRA partner countries in terms of funding sources, main topics, institutions involved (mapping of programmes)
- to identify the capacities and research activities of the forest research institutions in different areas (as well as their infrastructures, databases and experimental sites) (mapping of capacities).
- to identify the excellent forest research institutions in selected research and development areas within the MC involved (mapping of excellence); and, on the basis of the information gathered during the abovementioned activities.
- to identify complementarities, overlaps, gaps, barriers, duplications, in the existing research programmes and research capacities.
- to foster the information exchange among FORESTERRA partners regarding existing programmes and research capacities and activities.

WP3:
- to analyse and evaluate previous strategic studies (like the Mediterranean Forest Research Agenda 2010-2020--MFRA), which presents pan-Mediterranean jointly agreed research agendas, as well as new information gathered in WP2 (identifying complementarities, overlaps, gaps, barriers, duplications, of existing research programmes and research capacities).
- to develop a strategic plan that sets out common strategic issues and defines the common joint activities (WP4) as well as the research topics for future transnational research funding (WP5).
- to ensure cooperation and build partnerships with other relevant ERA-Nets (e.g. SUMFOREST (started in 2014), ARIMNet, WoodWisdom-Net 2, BiodivErsA, etc.) to avoid potential overlaps and foster synergies
- to discuss the possibilities of having a ERANET-COFUND on forestry research in collaboration with other ERA-Net initiatives such as SUMFOREST and Woodwisdom-Net.
- to ensure the sustainability of the cooperation developed in FORESTERRA
WP4:
- to improve the cooperation and coordination between the partners.
- to organise meetings and workshops efficiently.
- to share information, mainly contacts, data and experiments from other ERA-Nets.
- to promote common understanding of joint rules for the common activities.
- to explore possible agreements and protocols for the mutual opening of facilities and sharing data.
- to explore the possibility of developing Joint Transnational Research Units JTRUs.
- to define the rules for the monitoring of joint activities and for the final evaluation and impact assessment of the joint activities.
- to organise the monitoring and to ensure the final evaluation of the impact assessment.

WP5:
- to set up joint definition of programmes, for future implementation of a joint transnational call.
- to follow up the projects funded under the first Joint Transnational Call (follow up based on the guidelines on monitoring and evaluation of research projects D5.4)
- to define the monitoring of the funded projects after the finalization of FORESTERRA

WP6:
- to develop common templates and identify and describe main funding programmes in the different MCAs.
- to identify common strategic areas and make progress in the Exchange of information with MCAs.
- to implement specific networking activities in the MCAs, and other areas or institutions

WP7:
- to develop a communication plan.
- to strengthen and extending the engagement of different stakeholders through the Stakeholders Advisory Group (SAG) and different targeted events.
- to strengthen dissemination among the new EU Member and Candidate States
- to develop and maintaining the FORESTERRA Web, including interactive database tools resulting from collection of information in other WPs.
- to broaden the knowledge and technology transfer management via publications and workshops/seminars.

Project Results:

A-Definition of an Strategic Plan and FORESTERRA Strategic Research Themes.

FORESTERRA´s activities took advantage of the framework provided by the Forest Based Sector Technology Platform (FTP) and the work of EFIMED; both, jointly developed the Mediterranean Forest Research Agenda 2010-2020 (MFRA), which presents a pan-Mediterranean vision of the forestry challenges and scientific priorities relevant to all Mediterranean countries.

The FORESTERRA Strategic Scientific Plan (Deliverable 3.2 Strategic plan for joint activities and research topics for transnational funding ) has been built based on the Mediterranean Forest Research Agenda 2010-2020, a mapping exercise to identify and characterize forest research capacities and programs on Mediterranean forests and a wide consultation process with the scientific community and relevant stakeholders to define strategic scientific themes to be address through a transnational approach.

Based on a broad consultation process, four main multi-disciplinary and cross-cutting research themes were identified during the Forestersta Stakeholders Workshop, developed in Tunis, on 13th June 2012):
Global Change, Biodiversity, Multipurpose Landscapes, and Water.

Strategic Research Themes

The process of defining the strategic research themes for joint calls has been based on (Deliverable 3.1 Research Stakeholders Workshop):

- a bottom-up call for research ideas conducted via email by EFIMED;
- and two interactive workshops involving FORESTERRA research funding agencies, scientific community (involving all disciplines relevant to forest research) from most Mediterranean countries as well as other Mediterranean climate areas (California and Australia) and relevant stakeholders:

The FORESTERRA Stakeholders workshop (Tunis, 13th June 2012).

The FORESTERRA Stakeholders Advisory Group meeting (Rome, 18-19 October 2012)

Based on such broad consultation process, four main multi-disciplinary and cross-cutting research themes, in the framework of the MFRA, and of strategic Pan-Mediterranean relevance were identified:

1: Understanding global change drivers, indicators and impacts on Mediterranean forest ecosystems: a Mediterranean-scale approach. -GLOBAL CHANGE-

2: Fostering forest system resilience through managing biodiversity, from genes to community. -BIODIVERSITY-

3: Multi-purpose forest landscapes management to enhance the role of non-wood products and related ecosystem services in rural development. -MULTIPURPOSE LANDSCAPES-

4: Integrated watershed management for delivering forest water-related services. -WATER-

B- MAPPING OF EXISTING RESEARCH CAPACITIES

The main objective was the mapping and characterization of the existing forestry funding programmes and forestry research capacities of the countries participating in the FORESTERRA Consortium, which brought together 12 Mediterranean countries (Deliverable Nº 2.4: Report on the mapping and characterisation of existing funding programmes and research capacities). A mapping survey was performed using two procedures: i) dedicated questionnaires addressed to funding bodies and scientific organizations and ii) ad-hoc poster session aimed at exchanging information and validating the preliminary results, attended by delegates from participating countries.

A Mediterranean forestry research framework database was generated from the information gathered from 81 questionnaires (i.e. 48 from scientific organizations, 13 from funding Bodies and 20 forestry programmes financed by funding Bodies). This database is an open one and it will be progressively updated during the course of the project.

To identify complementarities, overlaps, gaps, strengths and weaknesses in forest research a country matrix analysis was performed; the data from questionnaires were organized in order to select eleven indicators as follows: (i) staff involved in forestry scientific organizations; (ii) ISI papers published by forestry scientific organizations; (iii) top five most utilized forestry journals; (iv) top nine most prestigious journals (with highest IF); (v) overall forestry research budget; (vi) budget financed by funding Bodies for forestry projects; (vii) budget of forestry projects; (viii) number of forestry projects; (ix) inventory of infrastructures dedicated to forestry research; (x) budget of forestry project per topic area; (xi) most promising forestry research lines.

The analysis of funding information shows that the overall budgets provided to forest research, mostly in the three largest countries of the region, are mainly related to scientific organizations committed to broadly defined agricultural research as is the case with INRA (France), INIA (Spain) and CRA (Italy). No relationships were found between overall budget in forest research and number of forestry projects
because the countries with more funds for forestry research do not necessarily have a greater number of projects as it is important to consider also the unit average budget per forestry research project. The analysis of the information about research staff (permanent and non-permanent) showed that the countries with more staff employed in forestry research are: France, Turkey and Italy with 1234, 962 and 873 staff, respectively. Conversely, Morocco, Tunisia and Slovenia have lowest forestry research staff numbers, with 70, 110 and 140 respectively. The ratio of non-permanent / permanent was on the average 75%, with large variation among countries.

The analysis of the dissemination of scientific information showed that the ISI (e.g. Thomson Reuters Web of Knowledge platform) journals used by the FORESTERRA countries to publish forest subjects papers are quite large and diversified (as large as 63), with variable impact factors (IF). The top five most utilized journals where the FORESTERRA countries publish their forestry scientific papers are: Forest Ecology & Management (IF: 2.744) European Journal of Forest Research (IF: 1.982) International Journal of Wildland Fire (IF: 2.231 ), New Phytologist (IF: 6.645) and Tree Physiology (IF: 2.88).


The analysis of research lines information showed that the forest topics of major concern, i.e. addressed by more than a half of the FORESTERRA countries, are: (i) effects of global and climate change (ecological and genetic adaptation); (ii) biomass production optimization/bioenergy; (iii) evaluation of forest ecosystem services. Conversely the forest research subjects addressed by fewer countries, are: (i) forest biotechnology; (ii) forest products chemistry; (iii) industrial forest plantation; (iv) land use change detection by remote sensing; (v) long-term disturbance regime; (vi) nursery and plantation techniques; (vii) salinity; (viii) seed dormancy and germination; (ix) social forestry; (x) structural wood modelling; (xi) sustainable use of forest products; (xii) tree breeding; (xiii) tropical ecology; (xiv) urban forestry; (xv) wildlife management and research.

The analysis of the infrastructures showed that the most common research facilities, i.e. owned by more than a half of the FORESTERRA countries: (i) genetic and biotechnology lab; (ii) eco-physiology lab; (iii) forest pathology lab; (iv) soil analysis lab; (v) experimental fields; (vi) experimental trials; (vii) meteorological stations. Conversely the less common facilities, i.e. owned by only one FORESTERRA country, are: (i) forest construction and transportation lab; (ii) landscape lab; (iii) ergonomics lab; (iv) arboretum; (v) botanical garden; (vi) technical drawing room.

C- IMPLEMENTATION OF JOINT ACTIVITIES

FORESTERRA, in addition to research projects, promoted different actions to improve the coordination and integration of forest research by fostering complementarities in both the national programmes and the existing research capacities. In an initial stage, the main activity was the preparation of networking actions (workshops and working groups) to exchange and disseminate the information gathered under the mapping of activities and the FORESTERRA scientific plan. It is important that Directors of the main national and regional Mediterranean forest research organizations are targeted via workshops and face-to-face meetings. Discussions with relevant leaders of research organizations, programmes and projects should aim at discussing protocols or agreements to potentially share infrastructures, experiments and laboratories as
well as scientific data, or to plan the development of new joint transnational research (see annex I) units to unlock the full potential of existing capacities and foster complementarities. Such work should demonstrate the partners’ ability to achieve a greater coherence at the Mediterranean scale (“scaling up”) of the various national programmes as well as of existing capacities, experimental sites and laboratories.

The establishment of protocols and agreements for mutual opening and sharing databases between countries included several actions:

(i) collect existing protocols and agreements for multinational utilisation;
(ii) study and analyse them for the identification of best practices and barriers in order to design a model for the different types of potential protocols and agreements;
(iii) request feedbacks from juridical experts of different countries during the process.

The Coordination and Support Actions proposed under themes I and III are examples of joint activities beyond research projects as they aim at coordinating/clustering existing capacities and activities to result in a more structure research area at the Mediterranean level.

In addition, Pan-Mediterranean cooperation activities were promoted by FORESTERRA in cooperation with other relevant organizations (EFIMED, FAO, CIHEAM, etc):

- o professional networks by gathering the capacities of the different FORESTERRA members for disseminating academic knowledge and professional know-how to enhance the average level of decision-makers working on the management of Mediterranean ecosystems;
- o improve the research capacities where needed by targeting both individuals and institutions, as well as research staff and PhD students through individual mobility grants for young scientists, summer schools and advanced doctoral courses on emerging and methodological research topics (ex. a staff exchange programme).

FORESTERRA’s joint activities not only covered forest research topics but other relevant topics for the well-functioning of an ERA-NET and achieved its final goal (coordination and cooperation):
- to identify good practices (experiences and lessons) on sharing information procedures, supporting transnational staff exchange to learn about other programmes, performing transnational calls, etc;
- to develop a toolbox/handbook compiling processes, recommendations, tools to facilitate transnational forest research in the Mediterranean basin.

a)- Main Joint Activities

- FORESTERRA Workshop on Strategics Activities (Tunisia, June 2012): The event aimed to introduce Foresterra to a large cross-section of the Mediterranean forest research community and to draw a scientific plan.
  • More than 90 participants attending the FORESTERRA workshop, including other Mediterranean Climate Areas. From Australia Jerry Vanclay, Southern Cross University and from California Keith Gilless, University of California - College of Natural Resources of Berkeley
  • Four cross-cutting themes were discussed, through interactive and iterative group work. Drafts strategic document produced, disseminated to EFIMED's network of over 800 stakeholders for additional comments.

- FORESTERRA Workshop for exchanging information regarding the mapping exercises (Rome, October 2012)
  • More than 27 participants. Exchange of information regarding existing research programmes and
capacities among partners, among countries and with relevant stakeholders
• After the workshop, the deliverable 2.4 “Report on the mapping and characterisation of existing funding programmes and research capacities” was produced. A summary was disseminated to EFIMED’s network of over 800 stakeholders by the newsletter and it is available at the FORESTERRA Website.
-Workshop with relevant ERA-Nets and JPIs (Barcelona, September 2013)
• Opening session which was attended by over 100 leading researchers, practitioners and policy makers in Mediterranean forestry (in coincidence with EFIMED Annual Meeting). The strategic themes of FORESTERRA were presented, alongside synergies and the impacts of research with other related initiatives.
• Participants had the opportunity to network and take steps towards building trans-national consortia for the forthcoming calls for proposals. FORESTERRA maximized synergies and the impacts of research not only with other related initiatives, but also with other Mediterranean Climate Areas.
• More than 80 participants attended the event and a total of 37 research organizations of 13 countries were represented (Algeria, Bosnia and Herzegovina, Bulgaria, Croatia, France, Greece, Italy, Morocco, Portugal, Slovenia, Spain, Tunisia and Turkey).
• The specific objectives of the workshop: to reinforce the networking activities among forest research institutions, units and laboratories; to promote the mutual opening of national forest research infrastructures and information (experimental sites, facilities, databases); to encourage the development of transnational joint research units.

-FORESTERRA dissemination workshop (Sofía, 2014): The objective was to strengthen the dissemination among EU Member States, MPCs, and the new EU Member and Candidate States.
• More than 32 participants. Presentations from the nine invited countries: Albania, Bosnia and Herzegovina, Croatia, Jordan, Kosovo, Macedonia, Montenegro, Serbia and Slovenia
• A way to produce new material and attract non-participating countries. To explore the possibilities to reinforce the cooperation with different stakeholders from these potential new countries (Middle East and Balkan countries)
• Sofia meeting attendants were invited, and some of them are participating in this Final Conference

SUMFOREST - FORESTERRA Workshop (Krakow, Poland, July 2014). The objective of the event was to maximise synergies and identify and define join strategic topics
• Attended by 19 people representing the different Work Packages leaders of each project. The FORESTERRA attendance was MINECO, FCT, CRA, EFIMED and INRA; with regards to SUMFOREST, the partners involved in the workshop were BMLFUW, MMM, IBL, INIA, BLE and BFW. Furthermore, MIPAFF, INEA and MAE which are involved in both ERA-Nets, were in Krakow as well.
• Discussion on SUMFOREST-FORESTERRA cooperation and joint activity plan. Discussion could include, inter alia, strategic topics identified in the FORESTERRA research agenda and their relevance at the European level, as well as possibility for SUMFOREST to maintain the FORESTERRA information/web and database on research activities alive after 2015, etc.

-World Forest Congress 2015 (Durban, South Africa): 150 organizations from 26 countries. 4 Major forest research topics: Understanding global change; Fostering Forest resilience; Multipurpose landscapes;
• Presentation of FORESTERRA by Marc Palahí, Director of European Forest Institute
• Introducing FORESTERRA at the Mediterranean Stand (FAO-AIFM): “The Stand “Mediterranean Forest” took place for the first time within the World Forestry Congress and was organized by the International Association for Mediterranean Forests (AIFM).
• Exchange of ideas, information and experiences in terms of different actions and projects -realized to resolve the many problems faced by the Mediterranean forest ecosystems- is a major key toward their sustainable development.

b)- Establishment of protocols and agreements for mutual opening and sharing databases (Developed in Deliverables 4.3 Report on protocols and consortium agreements for mutually opening facilities, and Deliverable 4.4 Report on the final evaluation and impact assessment of the joint strategic activities)
To face the challenge of mutual opening in Foresterra, questionnaires were distributed to enable an overview of the current scientific and administrative situation of the different RIs. The RIs are located in 11 different countries all around the Mediterranean with a majority of Member States of the European Union (7/11), the others being Turkey and North Africa countries, which implies differences in scientific cultures, legal system and partnership policies that should be taken into account when negotiating the agreements.
It appears that the majority of partners within Foresterra strongly prefer case-by-case negotiations for mutual measurements or data sharing. Almost all RIs answered ‘yes’ for the access to the data but with many different conditions that should be taken into account for the future agreements about mutual opening.
This could impede mutual opening within Foresterra if each action has to be negotiated individually. Therefore, providing common good practices and models of agreements to the Foresterra community may greatly simplify the exchanges, helping to anticipate the difficulties and improving the sharing conditions, and offering a common framework for future negotiations.

Exploring and promoting Joint Transnational Research Units
Creating a Joint Transnational Research Unit (JTRU) is a way to make collaboration concrete between at least two partners with different nationalities and status. Answers to a set of questions have to be provided regarding the nature of the project (including the forecasted activities), the levels of law to consider, the identity of the participants, and the type of intended collaboration.
There are two possible option; either create a legal entity, or contractually link the existing institutions. Some criteria to create a legal entity seem relevant for JTRUs within Foresterra; the legal option would be adapted only if a big part of the Foresterra community is concerned by the JTRU. If this is not the case, creating a legal entity would perhaps be too ambitious and not well-suited. The contractual option could be interesting for Foresterra as a step to more maturity for the project. It could also be a first step before a more integrative legal form or the creation of a legal entity with a part or all the Foresterra community. What could be the more appropriate is to create a general Foresterra framework at the level of each Research Institution engaged in Foresterra through a MoU or a Consortium Agreement. This general convention would give a way to survive the end of the Foresterra Grant Agreement, and also would give a common base for future JTRUs within the stakeholders of Mediterranean Forest. The general agreement would be a political engagement for the institutions and it would also provide general rules that future JTRU could adapt to their needs about the management of data sharing, the Intellectual Property and the
transnational access. Each member will keep its liabilities as an employer. The financial resources
managed by a JTRU come from contributions of the members participating in the JTRU.
- Actions implemented to support the creation of JTRU within Foresterra
In the frame of the third objective of Foresterra “to implement joint activities”, two initiatives are in
progress, the UForMed project and the MedWildFireLab networking action.
UForMed is deeply rooted in the INFORMED multidisciplinary collaborative project (2015-2017).
INFORMED was recently funded after the FORESTERRA call for joint research project. The ambition of
the UForMed Joint Transnational Research Laboratory “Ecology of Mediterranean forests in a global
change context” is to launch a laboratory of excellence leading multidisciplinary research on the
adaptation of Mediterranean forests to global change in order to address the current lack of continuity in
the research consortia about such issues. This Laboratory would be in line with a long lasting collaboration
between three components: URFM-INRA Avignon (France), INIA-CIFOR Madrid (Spain) and CNR-IBBR
Florence (Italy).

MedWildFireLab was funded by the first FORESTERRA call. MedWildFireLab consortium includes twelve
countries from East-West and North-South Mediterranean Basin. The WP8 of MedWildFireLab is
dedicated to the creation of a JTRU to ensure a long lasting cooperation in the field of wildfires research. It
has already been agreed that it seems hardly possible to create a JTRU, strictly speaking, with 8 or 10
partners. An alternative option was therefore proposed to formalise the exchanges between the partners,
consisting in associating all the partners of MedWildFireLab to the European Joint Research Centre (JRC)
through a Framework agreement on the risk of wildfire in Mediterranean region, in order to create a
common contact point.

D- Common strategic areas, relevant topics for joint transnational calls and common activities among the
different Mediterranean Climate Areas.

Missions to Australia and California.
Within the scope of Deliverable 6.1 “Report on mapping of programme and research capacities”, two
questionnaires were produced “Mapping of Funding Programmes in Mediterranean Climate Areas” and
“Mapping of Research Capacities in Mediterranean Climate Areas”, which covered quantitative and
qualitative information on bodies that have a funding role for forestry research projects. The results of the
questionnaires intend to identify and describe the main funding programmes, research institutions,
facilities and research topics addressed in MCAs. Due to the low amount of answers to the questionnaires
(described in Deliverable 6.1) the information obtained is useful but not enough for the mapping of
programmes and research capacities.
The Missions to Australia and to California allowed FORESTERRA to obtain more information about forest
research programmes and capacities in these other MCAs. Many shared interests were found in these
missions, and this information is very important for future analysis of potential networking and collaboration
opportunities between FORESTERRA, Australian and Californian researchers, and funding organizations.
Below are presented the main information gathered from both missions:
Mission to Australia
The funding schemes for the Forestry Research Sector identified in the mission to Australia, are:
-Federal Government;
-State Governments;
The industry has a key role in directing the research agenda/strong public-private linkage. The Australian priorities in Forest Research are: Water; Bushfire control; Climate change; Management of plantation: sylviculture; Forest genetics.

There are 3 possible strategic areas for cooperation between FORESTERRA and Australian researchers, namely: Climate change; Bushfire control and Water.

Mission to California

The funding schemes for the Forestry Research Sector in California are:
- Research Grants Programmes
- USDA Forest Service funding research programmes
- Forestry and Fire Protection funding research programmes
- Funds coming from Federal Research Centers
- Funds coming from NASA, when earth observation is needed
- California Air Resources funding programmes

The California priorities in Forest Research are related to: Fire (prevention, resilience and post fire restoration); Water resource (availability, regulation and quality); Global warming (adaptation and mitigation); Biodiversity preservation, with a specific emphasis on the role of invasive species and exotic pests.

All visited entities in California have shown interest in FORESTERRA, as they were impressed with the overlap of priority research topics and research issues between FORESTERRA and California. All targets of the FORESTERRA research agenda were perceived as relevant by the scientists and funding agencies. The main objective of FORESTERRA is to overcome the fragmentation on forest research in the Mediterranean region, creating conditions for increased and permanent scientific cooperation across the region. The development and adoption of the Strategic Plan that defines common research priority themes is the basis for implementing joint activities and projects in the Mediterranean basin.

The information obtained through this work is very useful for future analysis of potential networking and collaboration opportunities between FORESTERRA, other MCAs (California, Chile, Australia and South Africa) and funding organizations. The gathered information allows the identification of common strategic activities which contributes to the reduction of the fragmentation of the research community, avoiding overlaps and promoting synergies among existing capacities. In addition the identification of strategic scientific themes will benefit transnational funding. The work developed is a relevant contribution to the FORESTERRA objectives of promoting Transnational Mediterranean Forest Research.

E- FORESTERRA first Joint Call

FORESTERRA call included two kind of funding instruments: collaborative projects and networking actions. Following the evaluation and ranking of proposals by the Scientific Advisory Board, the Call Steering Committee (CSC) made the final selection of proposals recommended for funding according to the scientific ranking list and funds available. The Call Secretariat informed the Project Coordinators about the outcome after the CSC decision. The funding decision of the collaborative projects was for the
INFORMED proposal meanwhile the networking actions selected was the MedWildFireLab proposal. MedWildFireLab started last 1st of October of 2014 and INFORMED the 1st of January of 2015. The application and submission procedure, the eligibility check, the scientific evaluation and a list of funded projects have been described in the Deliverables 5.2 Selection and evaluation guidelines and 5.3 List of funded projects.

The Framework document of the FORESTERRA Joint call invited research teams to submit either Networking Action or Collaborative Project proposals to the following retained priority themes (Deliverable 5.1 Joint Call on Selected programmes):

- Understanding global change drivers, impacts and indicators on forest ecosystems: a Mediterranean-scale approach; theme: Global Change (for Networking action proposals).
- Fostering forest system resilience through managing biodiversity, from genes to communities; theme: Biodiversity (for Collaborative projects proposals).

The expected impact was the Mediterranean-scale understanding and added-value information of DPSIR (Driving Forces-Pressures-State-Impacts-Responses) to global change as a basis for developing new strategies, policies and governance models to enhance the sustainability of forest ecosystem services, from cross-sectoral policies to integrated land management.

The launching of the first joint transnational call for proposals the 4th of November 2013 was possible with the allocation of funds of the following institutions: Institut National de Recherche Forestière (Algeria), Executive Forest Agency (Bulgaria), Institute for Adriatic Crops and Karst Reclamation (Croatia), Croatian Forest Research Institute (Croatia), Institut National de la Recherche Agronomique (France), Ministère de l’Agriculture, de l’Agroalimentaire et de la Forêt (France), Ministry of Environment Energy and Climate Change (Greece), Department of Biology, Agriculture and Food Sciences of the National Research Council of Italy (Italy), Consiglio per la Ricerca e Sperimentazione in Agricoltura (Italy), Fundaêao para a Ciência e a Tecnologia (Portugal), Ministry of Agriculture and the Environment and Climate Change (Slovenia), Ministry of Economy and Competitiveness (Spain) and Institution de la Recherche et de l’Enseignement Supérieur Agricoles (Tunisia).

The total available budget for this call was 1.516.000€. An event for the pre-announcement of the joint call was organised in Barcelona on the 4th of September 2013.

Despite to the difficult economic context, FORESTERRA achieved to launch a Call with the participation of many Mediterranean countries: Algeria, Bulgaria, Croatia, France, Greece, Italy, Portugal, Slovenia, Spain and Tunisia. In general terms, the management of the FORESTERRA transnational joint call launch has been a success in terms of reaching deadlines, management procedures, documents production and communication. The experience gained from FORESTERRA related to the mechanisms and procedures put in place for the transnational call for research project could be used as example of effective management of transnational research programmes for other ERA-NETS.

G- FORESTERRA FINAL CONFERENCE

The final conference has been organised in Lisbon on 24-26 November 2015. The aim of the Conference was to disseminate FORESTERRA’s results and achievements. A more general objective of the
Conference was to become a forum on perspectives and challenges for the Mediterranean Forest Industry and Research. Results and achievements from the past four years were reviewed and analysed in a participatory set-up with 108 representatives from 21 countries. The conference was structured in three main sessions, 25 free poster contributions and three side events: the INFORMED stakeholder group meeting, a MedWildFireLab project meeting, and the SUMFOREST-FORESTERRA cooperation Task force meeting. The final FORESTERRA Steering Committee was held back to back.

- Session 1. Presentation of FORESTERRA achievements. This first session highlighted the considerable fragmentation still present in the Mediterranean forest research community and the need to build on the work accomplished by FORESTERRA in order to be able to generate and share the knowledge needed to face the multiple and complex challenges ahead. Participants expressed the view that joint research projects must be complemented with innovation actions and with more ambitious capacity building and mobility actions. Cooperation with SUMFOREST and WOODWISE ERANETS was regarded as a positive step, as long as Mediterranean priorities were well represented among the research and innovation priorities of this collaborative effort. All three ERA-NET coordinators committed themselves to ensuring this would happen. Future challenges identified were to strengthen alliances and exchanges with similar networks & projects, to continue the synergies and cooperation of FORESTERRA in other EU and international Mediterranean Climate areas, to bring together efforts on European bioeconomics & forest policies, such as the Cofund initiative for innovative forest-based bioeconomics. The topic of ERANET COFUND should coincide with the interests of the SRIA and the Mediterranean Forest Research Agenda (MFRA), to update the Strategic Research and Innovation Agenda (SRIA). Interaction with other related Mediterranean initiatives should be sought.

- Session 2, “What do we want from our forests?” was structured into five presentations and the main conclusions of this session, were that science based knowledge and mechanisms to connect science/policy/and practice should support forest management measures in order to adapt for future challenges as the climate change. These measures should be conceived for adaptation at short term (mitigate climate change) and at long term to preserve diversity.

- Session 3, a brainstorming session with the title "Key questions for future research on Mediterranean forests". After a very productive discussion, which provided a range of views from all represented countries and the poster’s authors, the main conclusion of the session, was the need to increase the science-policy-practice dialogue with a credible, clear, science-based message, focusing not only on what to do, but also understanding the socio-economic context (the who and the how). This should be considered in a context of great uncertainty, which is forcing us to rethink the way we do science, the way we transfer knowledge and develop management tools.

There was also a clear mandate to complete and capitalise existing research with innovation activities by leveraging the capacities of local actors, and to concentrate efforts in raising capacities and mutual understanding of young researchers and societal leaders. To this end, it is important to develop new tools to strengthen transnational research through interdisciplinary and multi-scale projects and integrated experimental sites. It is also important to increase networking and mobility, capacity building, knowledge transfer and innovation throughout the Mediterranean. In this sense, the experience of FORESTERRA was considered as very relevant and hopefully a first step towards scaling-up research and innovation funding in the Mediterranean.

Potential Impact:
FORESTERRA contributed to establish and strength a durable cooperation between the partners and their national research programmes as well as with other Mediterranean Climate Areas.

One of FORESTERRA’s main strengths was the communication and networking capacities and activities. In order to reach so, specific activities were developed: Creating, developing and maintaining FORESTERRA’s Web, including interactive database tools resulting from collection of information in other WPs; Elaboration of the Communication Plan; Publication of seven issues of the FORESTERRA Newsletter; Broadening and deepening the knowledge and technology transfer management via publications and workshops/seminars; Organising the Final Conference of the project in Lisbon. The Web site www.foresterra.eu had as its main objective disseminating the results achieved in the Project and giving support to the other WPs for the organisation of their activities.

The final results of the project and their potential impacts were structured around the main expected impacts listed in section 3.1 of DoW.

1. Impact on the European Research Area through an overall improvement of efficiency and effectiveness of European forest research.

The objective was to achieve the critical mass required to strengthen and make consistent the European “Mediterranean forest research offer” and its contribution to the regional forest research system. FORESTERRA also enhance the impact of Mediterranean forest research at a global level, due to the strategic role in connecting different Mediterranean Climate Areas.

2. Impact on other EC funded projects.

FORESTERRA collaborated with other ERA-NETs, mainly with SUMFOREST and WOODWISDOM. Several FORRESTERRA funding agencies participated with SUMFOREST ERA-NET in the call for forest research projects launched in the first half of 2016. There has been an active search for a common scientific ground where Woodwisdom-NET has also been involved. This contributed to open new opportunities for joint research activities for the Mediterranean forest research community. According to our knowledge, it was the first time that three different ERA-NETs cooperate in a joint transnational call and it can be seen as an important milestone for increased Euro-Mediterranean research cooperation. Collaborations with ERA-NETs SUMFOREST and WOODWISDOM have also made significant progress towards a future forest COFUND initiative with a common scope and interests with a sound basis on the FORESTERRA Scientific Research Innovation agenda (another success of this ERA-NET) and the Mediterranean Forest Research Agenda (MFRA).

3. Impact on regional and global forest research by exchanging and disseminating information in a more efficient way

FORESTERRA successfully provided support to all project activities including the organisation, communication and information among partners and the general public. We were able to identify the capacities and research activities of the forest research institutions in different areas (as well as their infrastructures, databases and experimental sites) (mapping of capacities). We also identified the excellent forest research institutions in selected research and development areas within the MC involved (mapping of excellence); and, on the basis of the information gathered during the abovementioned activities. We looked for complementarities, overlaps, gaps, barriers, duplications, in the existing research programmes and research capacities. FORESTERRA also aimed at fostering the information exchange among the FORESTERRA partners regarding existing programmes and research capacities and activities.
4. Impact on the sustainability of Mediterranean forestry by fostering complementarities between national research programmes,
The FORESTERRA consortium was able to define the rules for the monitoring of joint activities and for the final evaluation and impact assessment of the joint activities and managed to organise the monitoring and to ensure the final evaluation of the impact assessment.
The FORESTERRA call was also a success, this work represented the strongest form of networking and it consisted of funding and implementing a joint programme of transnational research projects and actions.
The first joint transnational call for proposals was launched the 4th of November 2013, and the total available budget for this call was 1,516,000€. FORESTERRA decided to fund the MedWildFireLab networking action and the INFORMED collaborative project. Furthermore, an analysis for a possible FORESTERRA second Joint Call was realised.
A specific task, Sustainability of FORESTERRA, was also developed to ensure the development of models for long-lasting cooperation among FORESTERRA partners.

5. Impact on national programmes through the development of common insight into content and management of the programmes; the exchange of good practices in terms of governance; the development of common approaches and common standards; planning and funding of transnational activities.
FORESTERRA also explored means of trans-continental cooperation with other Mediterranean climate-like areas. This included developing common templates and identify and describe main funding programmes in the different regions; identifying common strategic research topics and exchanging scientific information. Thus we used this networking activity to look for (as well as identifying barriers to) possibilities for scientific collaboration with Australia, California, South Africa and Chile. In that sense contacts with research performing organizations and research funding organizations from these countries were established and two missions were made during 2014, to Australia and California. Many shared interests were found in these missions, and this information is considered as crucial for future analysis of potential networking and collaboration opportunities between FORESTERRA, Australian and Californian researchers, and funding organizations.

6. Impact on stakeholders and public awareness by developing and disseminating a common understanding of strategic issues and a shared vision of Mediterranean forest research at Mediterranean and global levels, its objectives and its priorities.
Across FORESTERRA we have found most valuable engagement of different stakeholders through the Stakeholders Advisory Group (SAG) and different targeted events. Some of the SAG members have been accompanying FORESTERRA main activities and supporting our activities. FORESTERRA has managed to disseminate key information (calls, events, reports) among the new EU Member States and trans-continental partners.

FORESTERRA have improved the knowledge base regarding the impacts of climate change and adaptation strategies for the forest-based sector in the region, supporting better informed policies regarding forestry and its contribution to a knowledge based bioeconomy in the region, including implications for water and biodiversity conservation. Fragmentation is still very relevant in the region, and while there are few sources for funding international research and other cooperation activities,
FORESTERRA evolved as a powerful tool to improve and create bridges to the North and South of the Mediterranean region.

The final results and their potential impacts, lead us to believe that the scientific activities resulting from FORESTERRA were able to improve the understanding of i) the vulnerability of Mediterranean forest ecosystems to increased risks related to drastic land-use changes and climate changes and ii) the sustainability of forest ecosystems and the delivery of goods and services in the context of global change. Lastly these include societal implications such as enhancing the sustainable management of Mediterranean forests to ensure that forest goods and services with the highest societal value are preserve.

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