HELLENIC MINISTRY OF RURAL DEVELOPMENT AND FOOD
HELLENIC AGRICULTURAL ORGANIZATION "DEMETER"

Institute of Mediterranean Forest Ecosystems and Forest Products Technology (IMFE&FPT)

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Some facts about IMFE&FPT:

- The "Institute of Mediterranean Forest Ecosystems and Forest Products Technology" was established in Athens, Greece, in 1929 as the research arm of the Greek Forest Service.

Some facts about IMFE&FPT:

- In its more than 80 years of operation, the Institute has produced excellent research always focusing on the research needs of the practicing foresters of the Forest Service.
- In 1989 the Institute was integrated into the National Agricultural Research Foundation (NAGREF) and got its current official title.
- In 2011 NAGREF was merged with three other organizations of the Ministry of Rural Development and Food forming the Hellenic Agricultural Organization “DEMETER”.

Organization chart

The Institute comprises seven laboratories each covering an area of forestry research:

- Forest management and forest economics
- Silviculture and forest genetics
- Forest soils and biogeochemistry
- Forest protection (phytopathology, entomology) and forest fires
- Landscape architecture
- Forest ecology and hydrology
- Science and technology of wood

- The Institute maintains close ties with operational organizations (Forest Service, Fire Service, General Secretariat for Civil Protection, local authorities) and with the private sector (forest industries, private citizens, etc.), and puts emphasis on solving practical problems and on transferring new scientific knowledge and technology to the operational world.

- **Priority research areas include:**
  - **Forest health monitoring and protection (incl. effects of air pollutants on forest ecosystems, ICP Forests projects, investigation of invasive fungal pathogens in relation to the pathways of spread in natural ecosystems and the application of effective control methods, quarantine insects as defined by the European Plant Protection Organisation (Scolytidae, Gonipterus scutellatus [Col., Curculionidae], Nematoda inhabiting conifers)).**
  - **Effects of climate change on Mediterranean forest ecosystems (incl. insects invading Greece and Mediterranean Sea especially from Red Sea and Suez Canal, changes in forest species distribution, forest fire hazard evolution, etc.).**
  - **Forest fire management, including post-fire restoration**
  - **Seed Propagation of the Native Greek Tree Flora**
  - **Forest genetic resources' conservation at national and European level**
  - **Reforestation (natural regeneration, reforestation techniques)**
  - **Restoration of disturbed forest sites (mining, etc.)**

- **Priority research areas include:**
  - **Forest Pathology:**
    - **Investigation on the canker stain disease of plane trees, caused by the fungus Ceratocystis platani (syn.: Ceratocystis fimbriata f. sp. platani),**
    - **Ecology, distribution and pathogenic behaviour of root pathogenic fungi (Heterobasidion, Armillaria, Phytophthora).**
    - **Fungi causing cankers on species of the Cupressaceae family (Seiridium spp and Sphaeropsis spp.).**
  - **Wood technology:**
    - **Reuse and recycling of waste wood and wood based materials**
    - **Bio - adhesives for the production of wood based materials**
    - **Formaldehyde and VOC emissions from wood composites**
    - **Improvement of wood properties**
    - **New techniques for the preservation of wood**
    - **New methods of wood identification**
    - **Utilization of non-wood forest products for the production of added-value products**

Main past and current projects

1. **RESROBS:** (Resistance of spruce to root and butt rot disease) - (EU 5th Framework programme: quality of life and management of living resources- QLK5-CT-2000-00241. (2001-2005).
2. **FORTHREATS:** (European network on emerging diseases and invasive species threats to European Forest Ecosystems) - (EU 6th Framework programme, Priority 8.1) (2006-2008).
3. **DIAROD:** (Determining Invasiveness And Risk Of Dothistroma) – (COST Action FP1102), (2012-2015).
4. **Forest Focus** (Effects of air pollutants on forest ecosystems) (DG Environment (Regulation (EC) 2152/2003) (2006-2009).
5. **FutMon** (Further Development and Implementation of an EU-level Forest Monitoring System) - (LIFE+) (2009-2011).
6. **Biosoil** (Demonstration project co-financed under the Regulation (EC) No 2152/2003 concerning the monitoring of forest and environmental interactions in the Community (Forest Focus)), (2007-2008).
7. **EUFIRELAB** (Euro-Mediterranean wildfire fire laboratory, a 'wall-less' laboratory for wildland fire science and technologies in the Euro-Mediterranean region) (EU 5th Framework programme), (2002-2006).

Main past and current projects

8. **DESURVEY:** (A surveillance system for assessing and monitoring desertification) (EU 6th Framework programme, Integrated Project Contract No. 003950), (2005-2010).
9. **SCIER:** (Sensor & Computing Infrastructure for Environmental Risks)– (EU 6th Framework programme, IST-5-035164), (2006-2008).
10. **Forest Fuels:** (Standardization and treatment methodology of forest fuels in Attica) - (Operational Programme for Attica 2002-2006, Project ATT_63) (2006-2008).
11. **Post-Fire Forest Management in Southern Europe** (COST Action FP0701), (2008-2012).
12. **INCA:** (Linking civil protection and planning by agreement on objectives) – (Civil Protection Financial Instrument of the European Commission - Grant Agreement reference n° 070401/2008/507855/SUB/A3), (2009-2010).
13. **MASIFF:** (Development of a methodology for the analysis of socioeconomic impact of forest fires and economic efficiency of fire management) – (Joint Research Centre of the EC - Service Contract No. 384398), (2009-2010).
14. **Fire Prevention 2012-2013:** (Contribution to forest fire prevention in 2012-2013 with the INCA methodology) - (Green Fund of the Hellenic Ministry of Environment, Energy and Climate Change), (2012-2014).

Main past and current projects

15. **Forest value:** (Methodology for calculating forest land value in Greece) (Green Fund of the Hellenic Ministry of Environment, Energy and Climate Change), (2012-2015).
16. **Tackling of the metachromatic ulcer of plane disease in Greece:** (Green Fund of the Hellenic Ministry of Environment, Energy and Climate Change), (2012-2015).
17. **Evaluation of planting and seeding methods on burned forest sites with xerothermic conditions:** (Green Fund of the Hellenic Ministry of Environment, Energy and Climate Change), (2012-2015).
18. **Contribution to the post-fire management of Mount Parnis National Park (following the fire of 2007):** (Green Fund of the Hellenic Ministry of Environment, Energy and Climate Change), (2012-2015).
19. **Management of Recovered Wood:** (COST Action E31) (2002-2007).
20. **Processes and Performance of Wood-based Panels:** (COST Action E49) (2005-2009).
21. **FOROPENFOREST:** (Conservation of Priority Forest Openings in "Ethnikos Drymos Oitis" and Oros Kallidromo" of Sterea Ellada) – (LIFE 11NAT/GR/1014), (2012-2017).
22. **ORCHESTRA:** (Orchestrating forest-related policy analysis in Europe) - (COST Action FP1207), (2013-2017).

Future perspectives in the forest research domain

- The general perspective of the Institute is that forests today are under threat even in many developed countries. Global change, short term fiscal policies in the face of a widespread financial crisis, changes in the value system of societies, etc. represent serious challenges for the preservation and development of forests.
- Forest research needs to respond to these challenges in order to document threats and to provide realistic solutions for forest management. It has to provide good scientific knowledge and forest management criteria, and also has to advice on appropriate policies that take environmental, social and economic changes into consideration.
- As this has to be done with limited budgets, synergies with other Greek and International Forest Research organizations are highly desirable.

About forest research infrastructures:

List of available infrastructures to conduct forest research.

Experimental sites:

Four experimental plots (maquis, beech, oak and fir) and their three respective catchments (beech and oak are in the same catchment):

- Meteorological data from 1973 till today.
- Hydrological data (water discharge)from 1973 till 2006
- Deposition chemistry (bulk and throughfall deposition) since 1996.
- Soil solution chemistry since 2000.
- Detailed soil data for the 4 above mentioned plots.

Other datasets for the 4 plots concerning phenology, litterfall, ozone concentrations etc. are also available.

- The arcaeological site of Olympia which was restored by the Institute after a wildfire in 2007 and is being monitored threafter.
- A series of permanent forest management stands around Greece
- A number of selected seed producing stands (e.g. *Pinus nigra*)
- Experimental reforestation site with various treatments on Penteli mountain

About forest research infrastructures:

Large facilities:

- A forest nursery situated at the Institute's Garden
- Specialized insect rearing facilities

Other:

- The laboratory of Forest Pathology has a culture collection of fungi pathogenic to forest trees. Several fungal cultures have been exchanged with other laboratories in different countries.
- The Laboratory of Forest Entomology has many exhibition insect boxes housing an extensive collection.

About forest research infrastructures:

Scientific Equipment:

Wood technology lab: Extensive infrastructure. Detailed information on:
www.fria.gr/woodtech/

Forest management, Silviculture and forest genetics labs:

- **Seed Testing Laboratory equipped with Temperature and light controlled chambers (Binder KBW model 240, Tuttlingen Germany) oven, balances, refrigerators, Agriculex and further equipment for seed treatment**
- **Long term seed storage facilities**

Forest fire lab: Drying oven, balances, pressure bomb for water potential measurement, data acquisition systems, thermocouple welder, thermocouples, drip torches, backpack pumps, field meteorological equipment, weather stations, video and photo cameras, etc.

Fire ecology lab: A network of automatic weather stations

About forest research infrastructures:

Databases:

- Data for the entire tree flora of Greece are currently being collected and evaluated along with information on phenology (flowering and fruiting seasons), masting, dispersal, seed/fruit biometrics, seed germination and seed storability. This database (Daskalakou &Thanos 2013, in press) constitutes a management tool for the ex situ conservation of the 106 taxa examined (80 trees, 10 taxa usually growing as trees but also occurring as shrubs in the field and 16 taxa reported as shrubs or small trees).
- Meteorological database from 24 meteo stations located in selected forest sites. Data period 1960 -2013 (with some gaps).
- Data derived from 2300 soil profiles all over Greece concerning the forest soils (in collaboration with forest service).
- Data concerning carbon stocks for all forests all over Greece.
- Data for all the plants in Greece

About forest research infrastructures:

Databases:

- A large database for insect occurrences and associated ad-hoc DBMS
- Forest fire statistics database from 1983.
- Documentation of a large number of wildfires, including wildland-urban interface fires, in Greece (1990-2013)
- Water potential and selected forest plants moisture content data for Attica, during the fire seasons of 2002-2013.

About forest research infrastructures:

Does your institute have a specific policy of access to these infrastructures by other national/international institutes?

There is no specific policy. In general the Institute has the flexibility to establish ad-hoc agreements as needed.

Do you have any experience in mutual opening and transnational access of infrastructures?

Several researchers have visited the Institute and carried out work in cooperation with our researchers.

Transnational collaborations (European and international)

Does your institute participate in any network? Which one? Which is the main topic?

- COST FP904, (Thermo-hydro-mechanical treatment of wood)
- COST FP1207, (ORCHESTRA - Orchestrating forest-related policy analysis in Europe)
- COST Action FP0701, (Post-Fire Forest Management in Southern Europe)
- International Association of Wildland Fire
- Saproxylic insects of Greece and Europe network (especially those endagered species as defined by International Union for the Conservation of Nature)
- Various other collaborations at international level through European research projects, meetings, COST short research missions.

Transnational collaborations (European and international)

Who are the national / European / international institutes with which you have active collaborations?

Some collaboration examples:

- National Kapodistrian University of Athens, School of Biology, Department of Botany, (Prof. Dr. C.A. Thanos), Department of Biology-Zoology (Prof. A. Legakis), Department of Pharmacy (Prof. V. Roussis) (GR)
- Aristotle University of Thessaloniki, Department of Forestry & Natural Environment, Ass. Prof. Dr P. Ganatsas, Laboratory of Silviculture (GR)
- Section of Forest Nurseries & Seed Production, Special Secretariat for Forests, Ministry of Environment, Energy & Climate Change, Dr. D. Paitaridou (GR)
- Benaki Phytopathological Institute (GR)
- Mediterranean Agronomic Institute of Chania (GR)
- Technological Educational Institution of Larisa (GR)
- University of Istanbul (TR)
- Petru poni Institute of Macromolecular Chemistry (RO)
- Karamahnmaras University (TR)
- Global Fire Monitoring Center (GFMC) (DE)

Transnational collaborations (European and international)

Which are the direct outputs from this collaboration?

- Significant contributions to the book: “Post-Fire Management and Restoration of Southern European Forests”. Moreira, F., M. Arianoutsou, P. Corona, and J. De las Heras (Eds.). Springer, Heidelberg. 329 p.
- Significant contributions to the e-book: “Post-fire management in Southern Europe: An electronic handbook on management and restoration”. J. De las Heras, M. Arianoutsou, F. Moreira, V. Leone (Eds.).
- Other common papers, exchange of knowledge, improvement of perspectives on current issues, etc.

Transnational collaboration

Which is your interest in creating Transnational Joint Research Units?

- Exchange of knowledge and techniques
- Better and more intensive use of Institute facilities
- Use of facilities of other Institutes
- Keeping up-to-date on current scientific advances in the field including experimental techniques
- Further contribution to the ex situ plant conservation actions

Which are the positive outputs you expect from this type of collaboration?

- Better chances for collaborations and participation in International projects (submission of competitive research proposals)
- Additional knowledge on various subjects such as plant conservation measures
- Further information on materials and methods used (technologies & techniques)
- Improved results through complimentarity of skills
- Common projects and publications

Transnational collaboration

Do you identify any drawback?

- Uncharted procedures for developing such collaborations while avoiding bureaucratic headaches, trust issues, etc.
- Insecure environment in regard to changes in the public sector organization in EU countries. Some changes may be beyond our control.